CHAPTER XVI

A New Role in Amphibious Operations

Few officers in the United States Army of the 1930's could have foreseen the significant role which the Engineers would assume in amphibious operations during World War II. Relying upon World War I experience, the Army had based its plans upon debarkations at friendly ports, complete with docks, cranes, warehouses, and railroad sidings. Not until 1940 when the swift German advance across western Europe denied all Continental ports to Allied forces, were United States strategists jolted out of this limited conception. Realizing that a new phase of war planning had begun, the War Department in late June directed the 1st and 3d Infantry Divisions to add landing operations to their training programs. Fortunately, the Navy and Marine Corps had devoted considerable attention to the subject. It was to them that the Army turned for amphibious doctrine.[1]

Origins

The Marine Corps took the lead in formulating doctrine for amphibious assaults shortly after the Washington Conference of 1921–22.[2] From that time on, the Navy-Marine Corps planners assumed that any strike against Japan must be preceded by the assault and capture of enemy-held islands in the Central Pacific for the establishment of advanced naval bases. The Marine Corps within a few years roughed out its major strategic plans for the seizure of island bases in the face of enemy opposition, and delegated to itself the amphibious role. Since Army units were not trained for joint landing operations with the Navy, the Navy should have undivided command.

The first Marine Corps landing exercise of any consequence, in 1924, was a dismal failure. For nearly a decade thereafter the Marine Corps made no further advance. Then, in 1933, came a resurgence. Following urgent recommendations from the Marine Corps, the Navy set up in December of that year the Fleet Marine Force at Quantico, Virginia. This force of brigade strength was attached permanently to the United States Fleet and had for its primary purpose the capture of bases for the Navy. In 1934 the Marine Corps published a

[1] Four studies have been useful in preparing this chapter: (1) William F. Heavey, *Down Ramp! The Story of the Army Amphibian Engineers* (Washington: Infantry Journal Press, 1947); (2) Military Training in the Engineer Amphibian Command of the Corps of Engineers, May 1942–April 1944 (hereafter cited as Mil Tng in EAC, May 42–Apr 44), prepared in Hist Sec TIB OCE, in OCMH; (3) History of the Engineer Amphibian Command From Its Activation to 31 July 1943, prepared at Hq EAC, Pts. I, II, III; (4) Marshall O. Becker, The Amphibious Training Center, AGF Hist Sec, Study 22, 1946. Unless otherwise indicated, all files cited in this chapter are Engineer Amphibian Command files.

[2] The following discussion of the Navy-Marine Corps role in developing doctrine for amphibious operations is based upon Jeter A. Isely and Philip A. Crowl, *The U. S. Marines and Amphibious War* (Princeton, N. J.: Princeton University Press, 1951), Chs. I, II, III.

manual that covered the duties of the Fleet Marine Force in a landing operation. This manual formed the basis for all future amphibious doctrine.

In preparing the manual, the marines probed carefully into the probable effectiveness of various types and combinations of naval bombardment. They recognized the need of aerial support for reconnaissance, for spotting naval gunfire, for preinvasion bombing, and for protection against enemy planes. They emphasized that the ship-to-shore movement of small craft was a major tactical maneuver, not a simple ferrying job. Success or failure of a landing could well depend upon the rapid and correct loading of troops, the integrity of small units, the deployment of boats, and an orderly debarkation at the shore line. Special lighters would be needed to transport artillery and tanks. An amphibian tank would be ideal. Cargo vessels should be combat loaded so that all the matériel for any one unit would be together and arranged so that supplies needed first would be the most accessible. The logistical task did not end with debarkation. Troops and supplies must not be allowed to pile up at the water's edge, exposed to the enemy and impeding the landing of subsequent waves of the invading force. Special shore parties, accompanying the first waves, would mark the beaches for the flow of traffic, set up supply dumps, evacuate casualties, and make emergency repairs to boats. From ship to shore, the Navy beach party would be in charge; at the high-water mark the Marine shore party would take over. As far as the marines were concerned, no division of command occurred at the shore line, since the Fleet Marine Force was a part of the Navy. Elaborate radio and signal communications would smooth the whole operation.

Between 1935 and 1940 the Marine Corps engaged in yearly landing exercises with the Navy. To most observers, these maneuvers represented little improvement over the 1924 fiasco. Money was scarce. The Navy was reluctant to risk its small boats in dangerous operations for which they were obviously unsuited. The intricacies of amphibious supply were never tackled realistically. Cargo vessels were never combat loaded; supplies were instead placed ashore before each maneuver. Separate shore parties were never organized and trained beforehand. Orders became confused, boat units milled around aimlessly, got lost, and landed far from their objectives. In 1938, however, experiments with special equipment began to show results. The marines demonstrated a self-propelled tank lighter. In 1939, Andrew J. Higgins, a New Orleans boatbuilder, submitted the first model of his landing craft which, with some modifications, soon edged out all competition. In the same year the Marine Equipment Board purchased three Roebling amphibious tractors, forerunners of the LVT, commonly called the Alligator. By 1940, when the Army was forced to consider the necessity for training the 1st and 3d Divisions in landing operations, amphibious doctrine had been carefully worked out, and new and useful equipment was in sight. But lack of money, insufficient training, and faulty planning had hamstrung the development of techniques and procedures.

Before 1940 the Army had participated in Navy-Marine Corps maneuvers only once. In 1937, the 30th Infantry Regiment, augmented by artillery and engineer units, formed the First Expeditionary Brigade for joint exercises with the Navy. Recommendations from the commanding general of the Fourth Army that the Army continue

amphibious training and an invitation from the Navy to join in the January 1940 maneuvers went unheeded. It was not until 1941 that the Army's renewed interest in amphibious training resulted in another joint exercise.

Although the Army did not engage in the Navy maneuvers of 1940, the Corps of Engineers began to study its own functions in an opposed landing by running an Engineer School problem on this subject from late 1939 into 1940. The Army directive of June 1940 which ordered amphibious training for two Army divisions provided added impetus. At the Engineer School's second research course conducted early in 1941, a committee of three, including one Marine officer, was assigned to explore all possible duties which might fall to engineer troops in an amphibious assault.[3]

For four weeks this committee studied Marine Corps and British doctrine and techniques and the latest tactics of the Japanese and German Armies. The committee dismissed the unopposed landings of the Germans on the familiar soil of Norway as of little value either for formulating general principles or for evaluating the usefulness of engineer troops. British doctrine and techniques seemed too vaguely defined to be of much help. Apparently the British planned to include relatively few engineers in the first waves and restricted their duties to removing underwater obstacles, constructing landing facilities, supplying water, and establishing communications. The Japanese had the most practical knowledge of amphibious warfare. Information available to the committee indicated that Japanese assault forces were strongly reinforced with engineers. The existence of beach or shore parties could not be ascertained. In the final analysis there was little background except Marine Corps doctrine and experience.

The committee confined its study to ship-to-shore movements such as the marines had conducted in the past. Departing radically from existing Army doctrine, the committee sought to make engineer troops the basic soldiers in an amphibious attack. Instead of following the assaulting infantry, the engineer members of the combat team would form two waves of assault units which would hit the beach, with or without the protection of tanks and Alligators, and begin the destruction of fortifications some ten minutes ahead of the first wave of infantry. Each infantry division engaged in amphibious landings should have three engineer combat battalions instead of only one.

The division of responsibility which would occur at the shore line in a joint Navy-Army landing was of great concern to the committee. Without perfect co-ordination between the Navy beach party and the Army shore party the whole supply operation would break down. Current doctrine prescribed that the shore party should construct emergency roads, remove land mines and other obstacles, and provide hasty defensive works in case of counterattack, but that the beach party, interested in removing underwater obstacles and in providing temporary docks and ramps, should have control of both parties during the initial phase. A study of past maneuvers convinced the committee that the Navy could not be depended upon to furnish the necessary engineers and should therefore be restricted to handling boat traffic. An Army shore party, patterned after the Marine shore party, which was largely composed of

[3] See above, p. 21.

engineers and usually commanded by an engineer, should take over all beach and shore engineering functions. This recommendation clearly pointed toward an Engineer organization for this work.

The Navy was responsible for waterborne transportation between ships and beaches. Noting that the Army had for this reason left the development of landing craft to the Navy, the committee nevertheless suggested that the Army should develop some type of craft that might be suitable both for river crossing operations and for augmenting the Navy's craft in a landing if such a need should arise. The Army should also try to improve the design of the Alligator and the tank lighter. Finally, engineer combat units should receive training in maneuvering small boats in rough seas, in unloading equipment from ships, ferrying it ashore, and unloading it on the beach.[4] Early in April 1941 OCE sent a copy of the committee's report to G–3 and to selected engineer units for comment. G–3 appreciated the fresh approach to the subject and included some of the ideas in an Army field manual on landing operations.[5]

The joint Army-Navy amphibious exercises of late 1941 and early 1942 confirmed many of the findings of the Engineer School study. The forces were organized into a Pacific Fleet Amphibious Corps consisting of the 2d Marine Division and the 3d Infantry Division and an Atlantic Fleet Amphibious Corps containing the 1st Marine Division and the 1st Infantry Division, all under Navy control. Conspicuous among the deficiencies was the lack of a well-organized and trained shore party; co-ordination between beach and shore parties remained poor. Communications between the Army and Navy broke down. In the January 1942 exercise on the east coast none of the Army battalions was put ashore as a unit on the right beach, one was completely disorganized after being spread piecemeal over two miles of shore line, and another landed entirely outside the maneuver area. The Navy, being in command, bore the brunt of the criticisms.[6]

Strategic plans which were taking shape in the early months of 1942 for the prosecution of the war in both the Atlantic and Pacific depended increasingly upon the effective employment of amphibious techniques. At this stage of planning the offensive in Europe took precedence. Since the English Channel is a narrow body of water, a shore-to-shore amphibious attack on the coast of Europe rather than the customary ship-to-shore movement seemed feasible.[7]

Toward the end of February, Army General Headquarters, dissatisfied with the Navy's conduct of joint exercises, began to plan for an Army amphibious training center.[8] On 20 March, G–3 directed AGF (successor to GHQ) to select a site along the Gulf Coast that might be used for this center if and when sufficient landing craft could be obtained.[9] The site was to be large enough to hold one division at a time, the idea being to rotate divisions through a shore-to-shore amphibious program as a part of their regular training. Instruction

[4] Rpt 1, Landing Operations on Hostile Shores, 1 Mar 41, Second Research Course, 1 Feb–1Mar 41.

[5] OCE 352.11, Engr Sch (C).

[6] (1) Isely and Crowl, *op. cit.*, Ch. III. (2) Becker, *op. cit.*, p. 1.

[7] (1) Dwight D. Eisenhower, *Crusade in Europe* (New York: Doubleday, Doran and Company, Inc., 1948), pp. 28, 38–39. (2) Matloff and Snell, *Strategic Planning for Coalition Warfare,* pp. 99, 120–21. (3) Harrison, *Cross-Channel Attack,* p. 12.

[8] Greenfield, Palmer, and Wiley, *Organization of Ground Combat Troops,* pp. 90–92.

[9] Unless otherwise noted, the rest of this section on origins is based upon: (1) OPD 353, Amph Forces, Sec. 1 (S); (2) ABC 320.2, Amph Forces, Sec. 1 (3–13–42) (S).

would include "all phases of the operations of Army units involved in embarking troops and equipment in small boats from the land, the approach to and landing on a hostile beach, the establishment of a beach-head, and the preparation and initiation of an attack inland." [10]

Discussions which centered upon the composition and control of amphibious troops in the Pacific had as a background the struggle between the Army and Navy over which service should play the leading role in the subjection of Japan. Each had a different concept of the most effective disposition of forces and sequence of objectives to reach this goal. Each realized the importance of controlling a large number of troops trained for amphibious warfare. The decision of late March 1942 to separate the Pacific into the Southwest Pacific Area under General MacArthur and the Pacific Ocean Areas under Admiral Chester W. Nimitz did not settle the issue. The demarkation only served to set up two rival claimants for power.[11]

The Deputy Chief of Staff, General McNarney, conscious of service rivalry and concerned about the poor results of joint Army-Navy amphibious exercises, was convinced by early April that the joint Amphibious Corps under the control of the Navy were not working well. In casting about for a means to extricate the Army from the awkward relationship with the Navy, McNarney hit upon a geographical division of labor. The almost certain cross-Channel invasion of Europe would be followed by a prolonged land operation. For this task the Army division or corps would be best. In the Pacific, landings for the next year or so would probably be restricted to successive quick thrusts at small island garrisons, work for which the marines were peculiarly well suited. An Army amphibious corps for the Atlantic and a smaller Marine amphibious force for the Pacific should train separately. Each organization should develop independently for its own mission, by its own methods, with its own specialized equipment.

In submitting these observations to Admiral Ernest J. King, Chief of Naval Operations, McNarney left open any decision as to which troops would be employed under whose control during the later offensive phase of the war in the Pacific. Obviously, whenever strategy called for a move into the larger land masses of the Southwest Pacific, such as New Guinea or the Philippines, the proposed Marine amphibious force would be too small. Obvious as well was the fact that McNarney believed Army troops under Army control would be preferable in this area when the time came. The Navy, however, wanted to make this clear-cut Atlantic-Pacific geographical division permanent. Granted, the Marine Corps could not expand sufficiently to furnish the number of troops required, since by law the marines were restricted to 20 percent of the Navy's strength. Nevertheless, the Navy sought to maintain control of all amphibious forces, both Army and Marine, employed in the entire Pacific. The 3d Infantry Division should therefore remain under the control of the Navy. The Army should conduct only those amphibious landings projected against a continent.[12]

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[10] Memo, G–3 for CG AGF, 20 Mar 42, sub: Estab of an Amph Tng Center. OPD 353, Amph Forces, Sec. 1 (S).

[11] (1) For a discussion of this rivalry see Isely and Crowl, *op. cit.*, pp. 83–98; and Ernest J. King and Walter Muir Whitehill, *Fleet Admiral King: A Naval Record* (New York: W. W. Norton & Co., Inc., 1952), pp. 372, 381–89. (2) Matloff and Snell, *op. cit.*, p. 171.

[12] Memo, Col J. C. Blizzard for Col T. T. Handy, 17 Mar 42, sub: JPS 2/7—Amph Forces. ABC 320.2, Amph Forces, Sec. 1 (3–13–42) (S).

In the second week of April the United States and Great Britain agreed upon an emergency invasion of Europe in the late summer in case of German internal collapse or the disintegration of the Russian forces. Otherwise, a full-scale invasion would be pushed across the English Channel in the spring of 1943. Providing landing craft and crews for this offensive soon became a headache. The Navy, charged with the procurement of the boats, was concentrating its efforts upon replacing the larger elements of the fleet crippled by the Japanese in December. The expanding ship-to-shore amphibious program and the provision of crews for warships of the fleet absorbed all of the personnel that could be obtained under the Navy's policy of taking volunteers only. The Navy simply could not furnish and train the crews for any shore-to-shore amphibious operations projected against the European continent during 1942. Whether or not the British could furnish crews for the landing craft was still undetermined. Evidently, some arrangement had to be made to train U.S. Army boat crews.[13]

To the discomfiture of the Navy, the specific requirements for a cross-Channel attack intruded upon the deliberations of the Joint U.S. Strategic Committee which was preparing at this time a general study of amphibious forces. Following McNarney's line of reasoning, the Strategic Committee decided that the divergent tasks which were shaping up in the Atlantic and Pacific made different types of training imperative. Moreover, friction between the Army and Navy during joint training made a separation advisable. The marines should form an amphibious assault force for the capture of the smaller islands of the Central and South Pacific. Army amphibious troops should train in Army centers for the offensives in the Atlantic and in the Southwest Pacific. For the moment it seemed that the Army had won.

When the Strategic Committee placed this proposal before the Joint U.S. Staff Planners on 29 April it met with stout opposition from the Navy. The cross-Channel operation was a special situation which had unduly affected the thinking of the committee, the Navy held. For optimum results, one service should have full charge of all planning, equipping, and training. No decision could be reached, beyond the fact that the Army would be responsible for training boat crews for the European invasion.[14]

With this much to go on, G–3, on 9 May, issued statements of the Army's objectives to AGF, SOS, and AAF. By 1 February 1943, AGF was to train within the United States twelve divisions in shore-to-shore landings. The magnitude of this program led the War Department to suggest three locations for instruction. Four divisions might train at Camp Edwards, Massachusetts, six at Carrabelle, Florida, and two at Fort Lewis, Washington. Divisional training was contemplated at Camp Edwards from 15 July to 1 November 1942, and at the other two stations as soon as camps were ready and boats and crews available. SOS was to train sufficient boat crews, maintenance crews, and supply units to transport and sustain an eight-division lift across the Channel, plus a 50 percent reserve. Within SOS, the Corps of Engineers received the

[13] (1) Min of Joint U.S. Staff Planners, 22 Apr 42. ABC 334, JSP Min, Sec. 1 (2–13–42) (S). (2) Harrison, *op. cit.*, pp. 15–17. (3) Memo, King for Marshall, 5 Feb 43, sub: Army Engr Amph Boat Crews. 353, Tng (S). (4) Ltr, Capt B. G. Lake, USN, to EHD, 26 Feb 51.

[14] Min of Joint U. S. Staff Planners, 29 Apr 42. ABC 334, JSP Min, Sec. 1 (2–13–42) (S).

major part of this task. The immediate objective was to train enough boat units to permit divisional training to begin on 15 July.

By early June Army and Navy negotiators had arrived at some measure of agreement on over-all control of amphibious operations, although the Joint Chiefs had not yet given formal approval. All preparations for the shore-to-shore cross-Channel attack should be separate from those for ship-to-shore amphibious organizations and should be under the Army. The Navy would furnish landing craft and instructors for training Army boat crews. Craft of seagoing size would be manned and operated by the Navy. The reorganization of the ship-to-shore amphibious forces was a compromise. Within the Atlantic Amphibious Force, an Atlantic Amphibious Corps of Army divisions would be commanded by an Army officer. During 1942 this force would be employed in the Atlantic; after that it might be used in either the Atlantic or the Pacific. For the Pacific Amphibious Force, a Pacific Amphibious Corps composed of both Army and Marine divisions would operate in the Central Pacific under the command of a Marine officer. A South Pacific Amphibious Corps made up entirely of marines would work first in the South Pacific but might be shifted later either to the Southwest or Central Pacific. This left the exact composition of a Southwest Pacific Amphibious Corps in a nebulous state agreeable for the moment to both the Army and Navy.

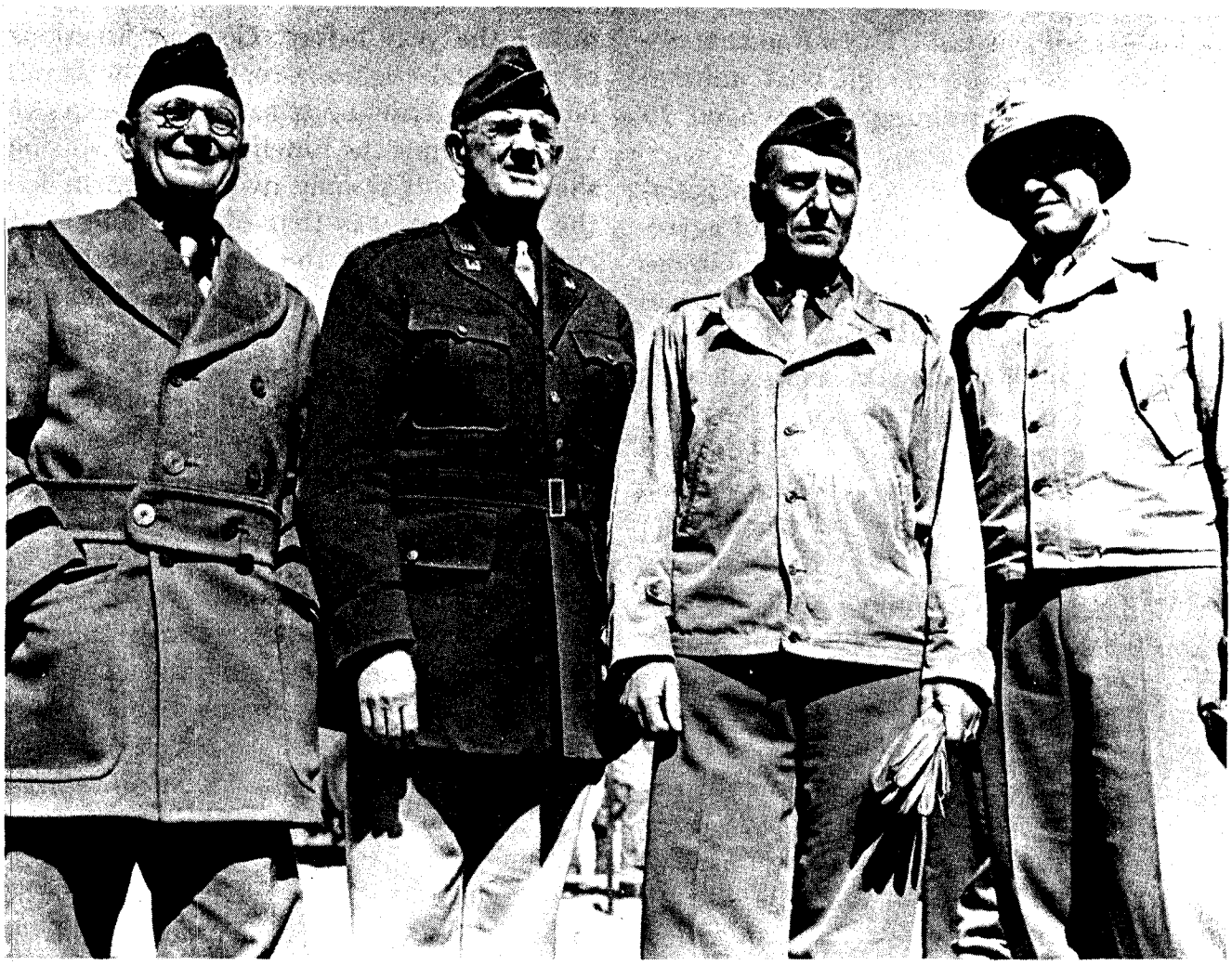
Early Organization and Training

The task assigned to the Engineers on 9 May 1942 was a narrow one compared to that envisaged by the Engineer School committee the year before. Combat functions of divisional engineers remained the same. No special Army units had as yet been devised to assume the functions of the Marine shore party. The only new assignment for the Engineers was that of providing and training crews for the landing craft that would be employed in the coming invasion of Europe.[15]

The assignment was a large one, nevertheless. The Army's immediate plans called for training about 48,000 men, organized into 18 engineer boat operating regiments and 7 engineer boat maintenance battalions. Since divisional training had to begin by 15 July, the Engineers had only two months to find a training site, make necessary improvements, form staffs, locate men with experience in small boats, organize units, start training, and prepare for joint exercises. In order to meet these requirements, the Engineers organized the Engineer Amphibian Command (EAC) at Camp Edwards on 10 June, while AGF established nearby the Amphibious Training Command, later known as the Amphibious Training Center.

Although the EAC was not formally organized until June, the Engineers brought a nucleus of the command together in Washington during May to do the required planning. Working under Sturdevant, this group was led by Col. Daniel Noce, who was to command the EAC, and Lt. Col. Arthur G. Trudeau, his chief of staff, later Director of Training, ASF. As executive officer of the

[15] Unless otherwise noted this section is based upon: (1) 353, Tng (C); (2) File 1 (S); (3) 333, Inspecs and Investigations by IG and Other Official Rpts; (4) Directives (S); (5) 220.01, Clas of Scores in Tests; (6) 353, Tng, 1942; (7) Ltr, CO EAC to CofEngrs, 1 Jul 42, sub: Progress Rpt, 319.1, Tng Rpts; (8) GOs, 1942; (9) Interv, Capt Walter C. Capron, USCG, formerly comdr of the Boat Unit Det, 14 Jun 50; (10) Becker, *op. cit.*, pp. 8, 39–45, 53–55, 63–65.



BRIG. GEN. DANIEL NOCE *(third from left), commander of the Amphibious Training Command, Camp Edwards, Mass., 1942. With General Noce are (from left) Brig. Gen. David A. D. Ogden and General Sturdevant; Col. Arthur G. Trudeau is on the right. (Photograph taken October 1942.)*

ERTC at Wood, Noce had valuable experience in setting up a new training center. Trudeau came to the EAC from an assignment as instructor at the Command and General Staff School at Fort Leavenworth.

Among the first tasks which Noce and Trudeau faced was defining in full the mission of the command. Recalling that well-organized and well-trained shore parties had been conspicuously lacking in amphibious operations up to that time, these officers determined to add the training of shore party units to the EAC mission. No existing unit had the proper specialist structure to accomplish the duties envisioned. Engineer combat regiments assigned to this work in the ship-to-shore maneuvers thus far had been unsatisfactory. In a shore-to-shore operation their duties would be even more complicated since this movement called for the assembling and loading of troops and supplies on the near shore as well as the unloading and reassembly on the far shore. The engineer combat battalion of the infantry division would have its hands full with engineer reconnaissance, demolishing un-

derwater and beach obstacles, and blowing up permanent fortifications. Borrowing from the ideas developed in the second research course, Noce and Trudeau drew up blueprints for a new Army unit that would incorporate the functions of both the Navy beach party and the Marine shore party. The organization which evolved was the engineer shore regiment containing three battalions, each having two far shore companies and a near shore company. The EAC staff proposed to integrate this shore regiment with a boat regiment and service units into a larger organization which would comprise an engineer amphibian brigade. The brigades would be able to transport troops and supplies, organize the beaches, evacuate the wounded and prisoners of war, and continue to supply the landing forces during the course of an invasion. Attached to infantry divisions they would assure the Army of unified command over amphibious operations. On 20 May representatives of AGF and SOS agreed to the new organization, and shortly thereafter G–3 approved a request from the Corps of Engineers for authority to activate eight brigades.[16]

The Engineers also had to clarify the extent of the command's responsibility for training. Originally G–3 proposed that the Engineers train individual crews which would then be assigned to AGF for unit and joint training. SOS objected to this system and Sturdevant on behalf of the Corps of Engineers carried the argument still further. The EAC, under SOS, should be responsible not only for organizing and training boat crews but also for their performance in action. Eventually the entire command should be transferred overseas, where it would continue to function under SOS until placed at the disposal of an invasion force. Sturdevant proposed that the organization, training, supply, equipment, and operation of this transportation service, and the training and equipping of shore parties, be placed under a single command, and that engineer units be attached rather than assigned to AGF for joint training. After AGF and SOS concurred, the War Department issued a final directive on 23 May incorporating these changes. AGF was charged with the development of doctrine, the training of divisions, and joint training.[17]

Probably the most troublesome issue in this preliminary stage, and indeed throughout the command's history, centered on the boats. The program was set up on the basis of the Engineers using 36-foot and 50-foot craft. On 9 May G–3 gave the boat requirements for the training of twelve divisions and necessary engineer units as 1,000 of the 36-foot landing craft and 225 of the 50-foot tank lighters—500 of the 36-foot craft and 125 of the 50-foot lighters to be delivered at Edwards by 30 July 1942. The others, intended for Carrabelle and Fort Lewis, were to be delivered during July and August. After the Engineers had an opportunity to examine their needs they revised these requirements upward to 1,550 craft of all kinds with 925 to be delivered by 15 July, but SOS soon found that the maximum production of boats would not satisfy the needs of the Army and Navy and requirements for Great Britain.[18]

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[16] Arthur G. Trudeau, "The Engineer Amphibian Command," *Military Review,* XXIII (September, 1943), 13.

[17] Ltr, TAG to CG AGF, 23 May 42, sub: Responsibility for Amph Tng. Directives (S).

[18] (1) Memo, Somervell for Admiral Horne [16 May 42], sub: Alloc of Landing Craft for Tng in the U. S. EHD files (S). (2) For a discussion of production of landing craft during the war see George E. Mowry, *Landing Craft and the War Production Board, April 1942 to May 1944* [Historical Reports of War Administration, WPB Special Study 11] (Washington, Civilian Production Administration, 1944, reissued 1946), pp. 5–11.

The urgency of the situation became apparent on 20 May when Sturdevant conferred with Navy officials who agreed to turn over 300 of the 36-foot craft to the EAC during June and July, provided deliveries were on schedule. To carry on amphibious training even on a reduced scale, 150 more 36-foot boats and 50 more 50-foot tank lighters would have to be diverted from overseas shipments. Sturdevant estimated that this number of boats would suffice to train only one regimental combat team at a time, enable the EAC to continue training, and provide for replacement.[19] The Engineers doubted that a successful cross-Channel invasion could be mounted in the 36- and 50-foot boats. Representatives of the British, the Navy, the Coast Guard, and Marine Corps all agreed that the choppy waters of the Channel would subject troops in small boats to such a rough voyage that fighting effectiveness would be drastically reduced. But no larger craft had yet been authorized when the time came to activate the command.

In the midst of the discussions on the types of boats to be assigned and the numbers which would be available, the Engineer Amphibian Command pushed forward the practical task of organization. Pressure to get the project started had led the War Department early in May to designate Camp Edwards, Massachusetts, as the best available location.[20] The camp was an established post and provided access to beaches on Cape Cod which were suitable for amphibious training. This choice was later criticized because boat instruction could not be carried on so far north during winter months. Originally, however, the Army did not expect to use the camp after November. The Corps of Engineers planned to instruct five brigades at Camp Edwards before the approach of winter and to train the remaining three units elsewhere. Since the center at Carrabelle would not be ready before autumn, and in view of the training schedule, both the EAC and the Amphibious Training Center at first concentrated their activities at Edwards.

With the location fixed, the Corps of Engineers and AGF investigated Cape Cod to determine where shore facilities could be constructed. They concurred in selecting the south shore to the east of Buzzard's Bay. On 28 May the Corps of Engineers leased Washburn Island in Waquoit Bay as an amphibious training site, and on 1 June leased the Falmouth Marine Railway for maintenance facilities. Soon after training began the command acquired an area along Cotuit Bay for amphibious training, a strip on Popponessett Bay for antiaircraft instruction, and additional maintenance facilities at Osterville. At all these locations, bays had to be dredged, camp sites prepared, and roads, piers, and utilities built. By the end of July, $1,600,000 had been allocated for construction. Although docks and piers were ready at the end of June, some of the troops using these installations had to be transported to them by truck five to fifteen miles from Camp Edwards. After 1 August, there was sufficient housing for 8,000 men, and camp facilities existed for many more.[21]

On 10 June 1942, before much of this

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[19] Memo, Sturdevant for CG SOS, 21 May 42, P&T Div file 381, BOLERO, Folio 1.

[20] (1) Info Memo, CofS SOS for CG SOS, 8 May 42, sub: Decision Concerning Arrangements for Handling Opn and Maint of Landing Craft in Connection with BOLERO. OCE 381, BOLERO (S). (2) WD Gen Council Min, 4 May 42.

[21] (1) Memo, Maj R. R. Arnold, OCE, for Col Noce, OCE, 18 May 42, sub: Visit to Boston and Cape Cod Area on May 15 to 17, 1942. File 1 (S). (2) Mil Tng in EAC, May 42–Apr 44, pp. 9–13.

construction had been started, Noce activated the Engineer Amphibian Command. A tentative T/O divided its responsibilities for organizing, equipping, training, operating, and administering amphibian units among five directors: Administration and Personnel, Services, Training and Operations, Specialist Schools, and Procurement and Supply. The first two brigades, activated on 15 June and 20 June, had a T/O which called for 349 officers, 20 warrant officers, and 6,814 enlisted men organized into a boat regiment, a shore regiment, and supporting units. The boat regiment contained nine boat companies, each of which was capable of carrying the combat elements of a battalion landing team at one time, a lighter company to provide additional transportation, and a second echelon maintenance company. Three boat companies and a headquarters company constituted a battalion. The shore regiment, which was almost half the size of the boat regiment, consisted of three battalions, each able to support the crossing of a regimental combat team and each organized into a battalion headquarters, two far shore companies, and a near shore company. In addition, there were in the brigade a quartermaster battalion to supply such essentials as fuel and to repair motor vehicles, a medical battalion to evacuate casualties, a brigade maintenance company to do third echelon repair work on landing craft, an ordnance platoon to take care of armament, and attached medical personnel for distribution among brigade units. In July the War Department authorized a signal company, raising the total strength of the brigade to 363 officers, 21 warrant officers, and 6,898 enlisted men.[22]

Just as at Claiborne, the task was new and had to be accomplished with speed. To hasten the organization of the command headquarters and the 1st Brigade, the Army assigned to the control of the Chief of Engineers a number of engineer, quartermaster, and ordnance units. The search for additional men began in May. The Adjutant General's Office sifted personnel records for required skills. The Corps of Engineers sent some 6,000 circulars to yacht and boat clubs, shipyards, and boat owners, and published articles in boating and yachting magazines. Military Personnel, OCE, organized teams of officers who flew all over the country seeking out and interviewing men with marine experience.[23] Private industry and organizations such as the United States Power Squadron supplied the names of skilled men already in the Army. In this way the command recruited 1,300 enlisted men during the summer of 1942, and also obtained officers directly from civil life. Men from these sources were specially well-qualified additions to the EAC. Yet during the year and a half of its existence, out of a total of 2,899 officers, almost two thirds came from Reserve status and from officer candidate schools. Similarly, more than three fourths of the 37,651 enlisted men came from replacement training centers and reception centers. Although the OCS at Fort Belvoir gave particular attention to choosing graduates for the command, and undoubtedly some men were sent to the organization because of amphibious skills, many were completely inexperienced.[24]

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[22] (1) Ltr, Gorlinski to CG SOS, 22 May 42, sub: Orgn of EAC, with Incl, May 42. 320.3, T/Os. (2) EAC Tng Memo 1 (rev), 27 Jul 42. Tng Memos 1–30 (C).

[23] Incl to Ltr, W. W. Bessell, Jr., to C of Mil Hist, 16 Jan 54.

[24] (1) Ltr, Bessell to CG SOS, 24 Jun 42, sub: Transfer of Qualified EM to the EAC, CE. 220.31, Assignment. (2) Ltr, ACofEngrs (McCoach) to William L. Sayres, 11 Aug 42. OCE 210.3, EAC, Pt. 1. (3) Mil Tng in EAC, May 42–Apr 44, pp. 20–21. (4) Info from Maj James C. Summey, Pers Div OCE, 4 May 50.

The intelligence of the troops assigned, as measured by AGCT scores, was a matter of serious concern. Examining the scores of the first 2,788 men obtained from replacement training centers, the EAC discovered that only 49 percent had attained Grade III or better. The average figure for any normal sampling was supposed to be 69 percent. By late summer and fall the caliber of men had improved somewhat but still not enough to satisfy the command. In answer to the EAC's protests, SOS explained that it was difficult to obtain an equitable distribution from men in replacement training centers since the higher grade men were often assigned first to service schools, to officer candidate schools, or as cadre.[25]

Whatever the cause, this situation made the command's efforts to avoid dissipating the skills of personnel who were assigned all the more valuable. As a new type of unit, the brigade contained job classifications for which there were no provisions under Army regulations or which were unusual and difficult to fill. Among these were coxswains, marine enginemen, and seamen. The command, therefore, placed great emphasis on interviewing new arrivals about their experience in boat construction, operation, and maintenance. Particularly important in this respect were their hobbies, and, as the command found out later, the summer occupations of those classified as students.[26]

After men were assigned to their units, the classification office followed up to see that their skills were put to good use. At the beginning of October 1942, the classification office found insufficient correlation between the tasks for which specialists had been trained and their assignments in various units. As a result, the command decided that units might be justified in placing men in positions other than those for which they had been trained, if changes became urgent, but the command required reports in all instances where proper assignments could not be made. All specially trained individuals were to be given an opportunity to demonstrate their abilities. If there were no suitable openings in a unit, they were to be reassigned.[27]

When Noce activated the first two brigades in June, he had an eight-brigade objective to reach by February 1943. The crowded schedule allowed only four weeks for training by the EAC. The 1st Brigade had from 15 June until 15 July to organize and complete this instruction before being attached to AGF for joint training. The other brigades were to have more time for organizing but were also to be given only four weeks of instruction, according to plans drawn up in June. This program presup-

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[25] (1) Memo, Dir Mil Pers SOS for Somervell, 20 Jun 42, sub: Asgmt of EM From RCs. OCE 220.3, EAC (S). (2) D/F, Dir of Mil Pers SOS to OCE, 17 Jul 42, same sub. Same file. (3) 2d Ind, Dir Mil Pers SOS to CofEngrs, 28 Oct 42 (OCE 220.3, EAC, Pt. 1), on Ltr, CofS EAC to CG SOS, 28 Sep 42, sub: Distr of AGCT Grades. 220.01, Clas of Scores in Tests.

[26] Col. Henry Hutchings, "Classification and Assignment at the Engineer Amphibian Command," *The Bulletin* (AG Sch, Ft. Washington, Md.) II, (July, 1943), 24–27, 53.

[27] (1) Memo, Clas Off EAC for Col T. L. Mulligan G–1 EAC, 27 Aug 42, sub: Instrs on the Selection and Processing of Enl Pers for Spec Schs as Set Forth by G–1. 352, Schs, EM. (2) Rpt, Clas Off EAC [Oct 42], sub: Spec Schs Study. Same file. (3) Memo, Dir of Sch and Marine Maint EAC to Mulligan, 7 Oct 42. EHD files. (4) Ltr, Adj Hq EAC to CG 2d EAB, CO 411th Base Shop Bn, 12 Oct 42, sub: Spec Schs Study. Same files.

posed that the men would already have had basic military training.

Although the brigade was designed for both logistic and combat support, assault training received primary emphasis in the early period. This approach was partly due to the command's origin, in the need for boat crews to mount an invasion, and partly due to the necessity for hurriedly training enough boat crews to enable AGF to start instructing divisions in amphibious operations. Thus the boat regiments received preference in the assignment of personnel, and the logistic potentialities of the brigade were not completely developed until later. Even so, in the case of the boat regiments, the time was sufficient only for learning the technical aspects of handling boats. Forming the brigades into integrated units had to be left to the period of joint training with AGF troops from the Amphibious Training Center.

During the four weeks just preceding joint exercises, each unit of the brigade concentrated upon the special tasks it was to perform. Members of the boat companies learned the duties of coxswains, enginemen, and seamen. Instruction included moving in simple formation, maintaining positions in a landing wave, following other boats at night, and, finally, the process of delivering a combat regiment ashore, although without the actual troops. Since boatmen required much individual and expert attention, the command gave this training itself through its Boat Unit Detachment which contained a large number of coast guardsmen. Maintenance units received special instruction in the repair of engines and hulls at the installations along the shore and in schools conducted by the command. Quartermaster, ordnance, and medical units operated their own schedules under their unit commanders. The shore regiments, which trained under the supervision of the command, spent most of their time under the direct control of unit commanders practicing demolitions, rigging, road building, and general construction. Supply procedures remained relatively undeveloped because the shore regiments had little training in actually moving and storing supplies.

For new officers the EAC established special schools. Reserves called to active duty were given a one-week course while those directly commissioned from civilian life were given four weeks of basic instruction. In addition the officers in the boat regiment of the 1st Brigade had three days of basic piloting and navigation. Some studied advanced navigation for another week. After 21 July all officers of the boat and shore units received a one-week elementary course in navigation.

As at other Engineer training centers, the command relied on civilian and service schools. The original directives had suggested the course of instruction at the boat yard of Higgins Industries, Inc., New Orleans. Training in boat operation and engine maintenance began there in May before the command was activated. In July and August the command rapidly enlarged its use of outside agencies. It sent men to various factories to learn about diesel and gasoline motors, the construction of boats, generators, fuel injection equipment, and the repair of batteries. For training as blacksmiths, welders, armorers, cobblers, auto mechanics, and many other assorted jobs, men attended service schools outside the command. In the year and a half of its ex-

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istence the command had approximately 5,600 officers and enlisted men instructed by other agencies.[28]

In the process of setting up a new training organization the command inevitably ran into problems which were aggravated by the speed with which results were expected. One of the most pressing in this early period was the scarcity of instructors. Since the Corps of Engineers could not begin to furnish all the specialists required for this complex mission, the command obtained qualified personnel wherever they could be found. The British Army and Navy provided staff officers. An officer from the U.S. Marine Corps headed the Shore Unit Section, one from the U.S. Coast and Geodetic Survey supervised the Navigation and Communications Section, and still another from the U.S. Coast Guard was in charge of the Boat Unit Section. The Coast Guard also supplied about one hundred enlisted men to give technical instruction in boat operation and maintenance. Infantry, Coast Artillery Corps, and Signal Corps officers directed respectively maintenance, weapons, and communications training. When recruits arrived without basic training—as they did in spite of plans to the contrary—instructors were obtained from the ERTC's at Fort Leonard Wood and Fort Belvoir. Because of the specialized nature of training, the scarcity of instructors, and a shortage of boats, the command conducted much of the training itself rather than leave it to the individual units. As a result, by September, personnel in command headquarters had increased to more than twice as many as the 683 authorized in May.[29]

All instructors were hampered because training had to begin before essential preparations could be made. Except for the boat regiment, T/BA's were not available at first, and organizational property came in slowly. A lack of training literature made it necessary to prepare this material as training progressed. Constructing training aids, assembling equipment, and improving camp sites took time, while constant attention to the organizational problems of a new installation hindered supervision. The necessity for training men who had previously been conditioned for entirely different tasks and who had to adjust to a new mission presented an intangible but nevertheless serious obstacle. The 1st Brigade obtained 2,269 men from existing units, the 87th Engineer Heavy Ponton Battalion forming the basis of the shore regiment and the 37th Engineer Combat Regiment of the boat regiment.[30]

By the end of June, both officers and men were discontented and confused. They complained of a "lack of knowledge of their immediate goal" and of "relative inefficiency in the work." Trudeau had to assure them that their training had a definite

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[28] (1) Info from Col R. C. Brown, formerly CO of the 531st Boat and Shore Regt, 31 May 50. (2) Memo, Trudeau for Staff Offs EAC All Unit Comdrs, 21 Jul 42. 220.31, Assignment. (3) Ltr, Higgins Industries, Inc., New Orleans, La., to Maj H. W. Quinn, SOS, 1 Jun 42. EHD files. (4) Ltr, Dir Tng and Opn EAC to Det CO Lincoln Recreational Area, 4 Jul 42, sub: Higgins Boat Sch for Amph Comd Pers. Same files. (5) Memo, Dir Spec Tng EAC for G–4 EAC, 12 Aug 42. 352, Offs Spec Sch Course. (6) Incl 1, Offs and EM Who Have Completed Spec Tng to Date (Other Than EAC Schs) Final Rpt, 28 Feb 44, to Ltr, Hq EAC to CofEngrs, 1 Mar 44, sub: Final Rpt on Schs of the EAC. P&T Div file, EAC—Gen.

[29] (1) Memo, Maj V. D. Whatley, Tng Div SOS, for Dir of Tng SOS [30 Jun 42], sub: Tng Inspec, EAC, Camp Edwards, Mass. 320.2, EAC Activation. (2) Tel Conv, Bessell and Mulligan, 30 Jul 42. 320.2, Cadre. (3) Ltr, CO EAC to CG First SvC, 27 Jul 43, sub: Pers Authorization Limits, 320.2, EAC Activation and Orgn. (4) Memo, Dir Mil Pers SOS for CofEngrs, 29 May 42, sub: Allot of Grades and Authorized Strength, Hq and Hq Co, EAC. OCE 353, EAC (S).

[30] Memo cited n. 29 (1).

bearing on vital future operations, that the "entire project . . . merely expressed in a few paragraphs as an idea, and an incomplete one at that, only six weeks ago," had been developed so that "Tables of Organization, equipment, men, and installations have been set up and training is progressing at a rapid rate." He readily acknowledged the existence of problems in navigation and communications and solicited ideas on how to solve them. Cautioning against looking at the picture with a "worm's-eye-view," he urged full and complete co-operation.[31]

It was natural that the men should be disgruntled, considering the equipment shortages and the slow rate of speed with which training progressed. The 1st Brigade, aware that it had only four weeks in which to prepare for joint training with AGF troops, had its boat instruction cut in half during the first week for lack of boats. Moreover, the men had reason to believe that the types of craft assigned were not ideal for the mission. For a short time it had appeared that the EAC would be allowed to man the 105-foot tank lighter (LCT), a craft which was much larger than the small boats definitely authorized for the EAC and smaller than the seagoing vessels that would unquestionably be operated by the Navy. On 21 May 1942 the Corps of Engineers received word that the Navy had agreed that EAC crews should man this craft. But a week later, in a conference with Vice-Admiral Lord Louis Mountbatten in London, Somervell indicated that the Navy would man the LCT after all. On 11 June, one day after the activation of the command, the Engineers reopened the question of whether the EAC, charged with shore-to-shore operations, should not man the LCT. To their amazement, they learned that the Navy had issued instructions for the training of crews in all types of landing craft for the coming invasion. By mid-June Somervell reached an agreement with Admiral King that the Army would train boat crews for all landing craft except LCI's (153 feet) and LST's (316 feet). This agreement was short-lived. On 29 June the Engineers received word from SOS that the Navy would be charged with the "procurement, training of crews, manning, and maintenance of the 105 foot tank lighter." [32] They also learned that "as soon as possible, the Navy will infiltrate into the Army Amphibious Training Camps and if sufficient progress is made by the Navy, they may later take over the entire project." [33] Thus, by the end of its first month, the Engineer Amphibian Command had to face the prospect that the Navy might operate all boats in the invasion.

In addition to the uncertainty over when or whether the Navy would take over the operation of all landing craft, the command began to worry over shrinkage in the size of its task. The disappointing rate of production of landing craft had led AGF to revise its estimates of the total number of divisions it could hope to have ready by February 1943. The number of engineer amphibian brigades would necessarily be lowered. On 1 July 1942 the General Staff reduced AGF objectives from twelve to eight divisions. Two days later Sturdevant called for a clear statement of policy. Morale was endangered. The command had already been activated. Training had begun.

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[31] EAC Cir 10, 3 Jul 42. Cirs—1942.

[32] 1st Ind, Brig Gen LeRoy Lutes, Dir Opns SOS, to CofEngrs 29 Jun 42, on Ltr, Sturdevant to CG SOS, 25 Jun 42, sub: 105-foot Tank Lighters (Navy YTL). File 1 (S).

[33] 1st Ind, Lutes to CofEngrs, 17 Jun 42, on Ltr, Sturdevant to CG SOS, 11 Jun 42, sub: Opn of 105-foot YTL Landing Craft. File 1 (S).

Several hundred thousand dollars had been spent for construction and more installations were planned. Two boat yards had been leased. Commitments had been made in recruiting officers and men. Sturdevant asked that all doubts as to the disposition of the command be removed. If changes were to be made, they should be executed promptly. If all action was to be stopped, then it should be stopped immediately. Although no definite answer was as yet forthcoming on who would man the landing craft in the cross-Channel attack, SOS informed the Chief of Engineers on 17 July that the command would henceforth train only three brigades plus a 50 percent reserve. The reserve was to be organized into two brigades, making the Engineer objective five instead of the eight previously authorized.[34]

Although the command faced a somewhat smaller task, it was still a difficult one. By 1 July the command had received 253 craft of various types, including 47 assorted secondhand boats purchased from private owners for employment as control craft. Ten days later it had 244 of the 36-foot landing craft and 5 obsolescent tank lighters, of which 60 percent were to be allocated to AGF training on 15 July. On 14 August there were in all 252 of the 36-foot craft, 30 tank lighters, and 47 control boats. This total, while close to EAC requirements, also had to be used during joint training.[35]

The boats were in such demand that there was little time for preventive maintenance. They were operated two or three shifts a day, sometimes at night, and even during off-duty hours, for the command wished its men to use them as much as possible during the brief training period. Furthermore, the 1st Brigade was so rushed that there was hardly enough time to give it instruction in the care of boats. A representative of The Inspector General suggested that maintenance procedures could be improved by fixing responsibility for each boat on one man. In August the command did assign responsibility to one coxswain and one engineman, but the constant use to which the craft were put made it impossible to hold any particular man or crew accountable. A further complication lay in the lack of standardization among the boats, which made the procurement of spare parts even more difficult in an already tight market. The 3d Brigade, activated at Edwards in August, just after the 1st Brigade shipped out, ultimately obtained enough craft but had difficulty keeping them running. More than half were out of commission in December, chiefly because there were no spare parts.[36]

The various hardships, such as shortages of equipment and the scarcity of instructors, took their toll on the organization. When the Inspector General's Department made an automotive and boat inspection near the end of July, the inspecting officer concluded

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[34] (1) Memo, G–3 for ACofS OPD, 18 Jun 42, sub: Alloc of Landing Craft for Tng in U. S., with Incl, 7 Jun 42. OPD 353, Amph Forces, Sec. 1 (S). (2) Memo, G–3 for CG SOS, 1 Jul 42, sub: Orgn and Tng of Amph Forces. Same file. (3) Ltr, Lutes to CofEngrs, 17 Jul 42, sub: Amph Tng. File 1 (S).

[35] (1) Incl, 25 Jun 42, to Memo, ACofS EAC for OPD, 25 Jun 42. Misc Ltrs IV (S). (2) Ltr, Trudeau to CofEngrs, 11 Jul 42, sub: Availability of Landing Craft. 561.1, Requests or Requisitions for Vessels (C). (3) Rpt, Dir Tng and Opn EAC to CO EAC, 14 Aug 42, sub: Status of Boats, 14 Aug 42. 560, Vessels, All Kinds.

[36] (1) Ltr, Proc and Sup Sec Hq EAC to CO EAC, 15 Aug 42, sub: Boat Maint. 560, Boats, Barges, Vol. I. (2) Memo, Brig Gen D. A. D. Ogden for EHD, 8 May 50, sub: The EAC. (3) 6th Ind, Noce to CG SOS, 3 Feb 43, on Ltr, Noce to CG SOS, 23 Dec 42, sub: Failure of Sup Sources for Marine Engine Parts. 412.5, Engines, Motors, Parts of (S).

LANDING CRAFT OPERATED BY ENGINEER TROOPS *in a training exercise, Camp Edwards, Mass., 1942.*

that the whole command showed the effects of forced development. "Plans have not been well thought out far enough in advance of their execution," he observed. "The result has been general confusion and great expense. From results so far obtained, it is questionable whether the rapid development and expense involved are warranted." [37] In reply to The Inspector General, the command pointed out that even the best of plans could not be executed satisfactorily without thoroughly trained men, and noted with some pride that the 1st Brigade had moved overseas within six weeks of the time it was organized.

The 1st Brigade had become available for joint training with the Amphibious Training Center on schedule in mid-July, but its instruction had hardly begun when it was alerted for overseas movement to the United Kingdom. It moved on an emergency basis, with Somervell giving special attention to its equipment. There was some uncertainty in the command as to how the brigade would be employed. On the one hand, the 36-foot and 50-foot craft prescribed for it were not suitable for a cross-Channel invasion from the United States sector in Britain, the area from which they apparently would have to embark under existing plans. On the other hand, the brigade had not been trained in ship-to-shore operations, for which these craft could be used. Further training in England would be necessary, whatever the nature of the task assigned, and the EAC expected to continue to carry this responsibility through an advance EAC headquarters sent over with the 1st Brigade. But when the 1st Brigade arrived in the United Kingdom in mid-Au-

[37] Ltr, IGD to TIG, 10 Aug 42, sub: Automotive and Boat Inspec, EAC, Camp Edwards, Mass. 333, Inspecs and Investigations by IG and Other Official Rpts.

gust the whole picture had changed. Great Britain and the United States had given up the idea of any cross-Channel invasion in 1942, and agreed instead on a North African operation for which the Navy was to provide crews in a ship-to-shore movement. Eisenhower had placed the Navy in charge of all amphibious training in the European theater. The Navy could see no need for any organization larger than a battalion, nor for any additional brigades. Only with the strong backing of Army officials did the brigade headquarters avoid extinction. The 1st Brigade was never used as originally planned. The boat regiment was eventually disbanded, and the combat engineers who had become boatmen became in turn stevedores and finally combat engineers again. The brigade's major function was henceforth to be shore operations in North Africa, Sicily, Italy, Normandy, and finally Okinawa.[38]

As a result of the shift in operational plans, the War Department changed the EAC's objectives once again. On 17 August 1942, SOS informed the Corps of Engineers that instead of training five brigades they were to train only three. Of the two remaining in this country, one—preferably the 2d—would probably be assigned to AGF for training divisions. The other brigade would be employed overseas in any task forces that might be organized. If more brigades were ultimately needed, the AGF training unit could furnish cadres.[39]

Although requirements for engineer amphibian brigades had been reduced, this did not alter the tight time schedule for those brigades which remained authorized. In July, after only four weeks of instruction by the EAC, the 2d Brigade, still understrength, replaced the 1st in joint training at the Amphibious Training Center. After its activation in early August, the 3d Brigade had three months for training before being attached to AGF, but four weeks of this time were consumed in giving basic training to enlisted men, many of whom had come to the command from reception centers. Both the 2d and 3d Brigades suffered from the removal of large numbers of troops for the North African campaign. In this process the 3d Brigade's shore units were severely depleted in order to furnish replacements for the 2d. At the end of August the command extended the four-week training program under which it began instruction to five weeks in order to include general subjects suggested by OCE, but the time allotment was still insufficient to produce well-trained units.[40]

The withdrawal of partially trained troops to meet urgent overseas requirements concerned the Amphibious Training Center of AGF as well as the Engineer Amphibian Command. The instruction of divisions by the AGF center was dependent upon the boats, crews, and shore parties provided by the command. When the 1st Brigade moved overseas, the Amphibious Training Center

[38] (1) Memo, Noce for Lt Col R. R. Arnold, 30 Jul 42, sub: Status of the EAC in the U.K. 370.2, Obsvns Rpts on Trps (S). (2) Memo, Arnold for Noce, 25 Jul 42, same sub. Same file. (3) Interv, Trudeau, 3 Jun 50. (4) Memo, C of Engr and Dev Br OCE for Noce, 21 Aug 42, sub: Amph Tng. 353, Tng Rpts of (S). (5) ACofS EAC, Diary of Advance Echelon, 4–15 Aug 42. Personal files, Col Henry Wolfe. (6) Heavey, *op. cit.*, p. 37.

[39] Ltr, Lutes to CofEngrs, 17 Aug 42, sub: Amph Tng. EHD files (S).

[40] 1st Ind, 17 Nov 42, on Ltr, C of O&T Br OCE to CG EAC, 12 Nov 42, sub: Senate Investigation of Amph Trps. 322, Orgn Activation Disbandment of Units (S).

had to rely upon the inexperienced 2d Brigade for joint training. Late in the summer the Amphibious Training Center faced a similar situation when men from the 532d Shore Regiment shipped out for the North African campaign. Although the EAC had no control over these troop movements, such transfers became a source of irritation between the two installations.

Even more irritating, from the point of view of the AGF center, was the EAC's practice of rotating boat and shore battalions for short periods during joint training. This arrangement stemmed entirely from the shortage of boats and was the only practical way that the EAC could provide instruction. Although the system served to train successive increments of the brigades, it meant that AGF troops never had a well-trained unit to work with. Each increment was as green as the one before.

The directive of 17 August had earmarked the 2d Brigade for assignment to the Amphibious Training Center for indefinite duty as a training adjunct to AGF. The Engineers, however, insisted that all of the brigades must have this experience, that none should be delegated for this duty alone. In view of the scarcity of boats, which made the rapid rotation of units unavoidable, the existing system must be continued. The War Department shifted once more to the support of the Engineers—for the time being.[41]

Beginning on 18 August the 2d Brigade engaged in a three-day exercise with the 45th Infantry Division. There were enough boats to carry only one regimental combat team and selected elements from the rest of the division. The results of this maneuver, closely paralleling the earlier experience of the Navy, were unsatisfactory. The brigade failed to land boats on the right beaches at the right time. The need for more intensive training, particularly in navigation, was obvious. In an effort to provide competent navigators, the EAC investigated U.S. Navy and British practices and established a school for officers at Harvard University. After conferring with leading American industrialists on the development of navigational aids, the EAC adopted extensive new equipment and laid particular stress on training in its use.[42]

Having acquired considerable experience in training for amphibious operations by the end of the summer, the EAC began to devote more attention to the selection of equipment and to the refinement of organization and techniques. There was dissatisfaction with the 36-foot boats. They should be faster. The personnel carrier, LCP, was particularly objectionable because its ramp was so narrow as to restrict the speed with which troops could unload, thus unduly exposing the men to enemy fire. Trudeau informed the Navy in August that the cargo carrier, LCV, was much preferred. The LCV was a seaworthy boat with maximum deck space and had an armor-plated ramp for frontal protection. Modified to provide even greater protection and to accommodate the ¾-ton weapons carrier, the LCV

[41] Memo, Asst Ground AG for CofS U.S. Army, 28 Aug 42, sub: Availability of Engr Trps for Amph Tng Comd, with 2d Ind, O&T Br OCE to CG SOS, 7 Sep 42. OCE 370.5, EAC (C).

[42] (1) Rpt, Lt Clarence A. Burmister U.S. Coast and Geodetic Survey, sub: Rpt on Results of Conf With U.S. Navy Officials at Washington, D. C., 16–27 Aug 42. File 2 (S). (2) Rpt, CG EAC, 26 Jan 43, sub: Rpt on Secret Mtg for Purpose of Obtaining Additional and Improved Navigational Aids for Shore to Shore Amph Opns. 413.44, Wireless Radio Instruments Supplies for (S). (3) Memo, Ogden for EHD, 8 May 50, sub: The EAC.

ENGINEERS PLACING SOMMERFELD TRACK ON THE SAND *as a road expedient for vehicles coming ashore from landing craft.*

became the combined troop and cargo carrier, the LCVP.[43]

Late in August the EAC established the Development Section, which conducted a series of tests of equipment and procedures for bringing ashore great quantities of matériel and organizing its flow across the beach. Tracked vehicles could navigate across sand without difficulty, but trucks and jeeps required some expedient roadway. To provide such surfacing the Development Section compared various landing mat materials as to facility of transport, rapidity of laying, strength, durability, and ease of camouflage. Cyclone chain link fencing proved the most universally acceptable type of road expedient. In addition to the readiness with which it could be transported and handled, it had a resilience which obviated the need for fastening it down.[44]

Although most cargo would be discharged direct from landing craft onto the beach, it was realized that some craft might become stranded on offshore bars necessitating unloading their cargo and transporting it for a short distance through the water. For this purpose the Development Section tested two amphibians, the Alli-

[43] (1) EAC Dev Bd Rpt 123, 23 Dec 42, sub: Gen Rpt on Cargo Handling. (2) Memo, Trudeau for Noce, 28 Aug 42. 561, Acquisition and Constr of Vessels. (3) Memo, Trudeau for Gen Keating, 14 Sep 42. Same file. (4) Tentative Tng Guide 1, Hq EAC, Feb 43, sub: Engr Amph Trps, Gen. (5) 2d Wrapper Ind, Trudeau to CofEngrs, 1 Sep 42, and 6th Wrapper Ind, Trudeau to CofEngrs, 21 Oct 42, on Ltr, C of Trans to Vice C of Nav Opns, 10 Aug 42, sub: 1942 Rqmts of Standard Landing Craft for EAC. File 2 (S).

[44] (1) EAC Dev Sec Rpt 124 [15 Mar 43], sub: Test of Road Expedients. (2) Tentative Tng Guide 7, Hq EAC, May 43, sub: Engr Amph Trps, Orgn of the Far Shore.

JEEP LEAVING LANDING CRAFT *comes ashore over Sommerfeld track in a training exercise, Camp Edwards, 1942.*

gator, a tracked vehicle, and the DUKW, a wheeled vehicle, in addition to several other means of transport such as the standard assault boat and pneumatic cargo raft. The tests revealed the Alligator to be a very good vehicle, but the DUKW was even better. The DUKW had been developed under the guidance of the NDRC around the standard 2½-ton truck. It was thus basically a proven mechanism which was being produced in quantity, with which there was widespread familiarity, and for which there was a relatively plentiful supply of spare parts. Its tires were of a special design for rapid travel over sand. It was apparent as tests proceeded under the guidance of the NDRC that the DUKW would be extremely useful in unloading freighters anchored at some distance from the beach. In a final demonstration on 8 December 1942, eight DUKW's carried 80 tons of dummy cargo from a Liberty ship anchored one mile offshore to a supply dump some 1,900 yards inland. Speed through the water was slow, about five knots, but on land the DUKW could make 50 miles an hour carrying as heavy a load as its truck prototype. The fact that the DUKW could proceed with its cargo across the water, over the beach, and straight to a dump more than made up for its slowness in the water and conserved manpower which would ordinarily be diverted to unloading and loading at the waterline. The DUKW exhibited the precious military virtue of versatility. Equipped with an A-frame, as one in three eventually was, it could substitute for the less maneuverable standard truck crane. The DUKW's rear winch, most commonly employed to drag along extra cargo by

beach sled, could also be depended upon to assist in towing stranded vehicles or boats. Each brigade was equipped with 36 DUKW's.[45]

The command found during joint training with AGF that one boat battalion and one shore battalion were normally assigned to support a regimental combat team. By uniting the boat and shore elements, the command believed it could provide an integrated unit for the combat team leader. On 5 September 1942 Noce asked permission to reorganize one brigade experimentally into three amphibian regiments, each regiment to consist of a boat battalion, a shore battalion, and regimental headquarters. The EAC considered this organization more flexible because it contained three regimental staffs, thus corresponding to the infantry division's major subdivisions and facilitating independent operation by combat teams. Once an entire division had made a crossing, the brigade commander could unite all the shore battalions under a single command. The War Department authorized this reorganization first for the 2d Brigade, and then for the 3d Brigade when it was scheduled for joint training.

Continued Threat From the Navy

The EAC had grown out of the Navy's inability to assume the training of a large number of boat crews in a limited space of time for a specific operation.[46] The Navy continued to consider the operation of boats its proper sphere and thought of the EAC's shore-to-shore boat units as temporary, stopgap organizations. While affirming tentatively in early June 1942 that the boat units for the European invasion would be under Army control, the Navy would not make the agreement final. As a result, the various amphibious corps that were set up had no permanent status. Until September, each time the matter came up for decision at the meetings of the Joint Chiefs, the Navy, stalling for time, managed to defer any signing until the next meeting.

By mid-June the Navy felt confident that no shore-to-shore invasion of Europe would take place until 1943, despite the President's insistence that some offensive move should be made during 1942. Given this additional time, the Navy believed it could handle the training of shore-to-shore crews. On 12 June, King instructed Rear Admiral Henry K. Hewitt, commander of the Atlantic Fleet Amphibious Force, to assume this obligation and give it priority over all other activities. This was the order that had fallen with such weight upon the EAC shortly after its activation. Three days later Somervell reached a compromise with Vice Admiral Russell Wilson, in the absence of King, that the Engineers should continue with the training already started, including that for the 105-foot lighters. All plans for the Carrabelle center would be suspended while Army and Navy representatives worked out plans for a combined training program at Edwards. Since the Navy would not take drafted men, the transfer into the Navy of

[45] (1) For details on the DUKW, see James P. Baxter, III, *Scientists Against Time* (Boston: Little, Brown and Co., 1946), pp. 243–51. (2) Directive, Trudeau for Opns Off EAC, 3 Nov 42. 354.1, Provincetown (S). (3) Tentative Tng Guide 7, Hq EAC, May 43, sub: Engr Amph Trps, Orgn of the Far Shore. (4) EAC Dev Bd Rpt 123, 23 Dec 42, sub: Gen Rpt on Cargo Handling. (5) Rpt on Cargo Unloading by 2½-Ton DUKW.

[46] This section is based primarily upon the following files: (1) ABC 320.2, Amph Forces, Sec. 1 (3–13–42) (S); (2) OPD 353, Amph Forces, Secs. 1, 3; (3) 337, Confs Mtgs and Other, 1942–43 (S).

those units already organized by the Army would have to be arranged later.[47]

G–3 was confused. On 18 June Brig. Gen. Idwal H. Edwards requested OPD to clarify the muddle. Maj. Gen. Thomas T. Handy, chief of OPD, replied on 26 June that apparently both the Army and the Navy had assumed responsibility for training all landing craft crews for the coming invasion:

> The question as to whether the Army programme will be interrupted, in view of the instructions promulgated by the Navy, must be held in abeyance pending a decision by the Joint Chiefs of Staff. No conference on this point is contemplated until the week of July 6, 1942 pending the return of Admiral Hewitt from the U. K. The Army will carry on its programme without any change until such time as the J. C. S. settle the existing differences.
>
> The Navy is not in a position, however, to obtain crews for such a force with their present personnel procurement methods, and they realize that much depends upon the decision of the Joint Chiefs of Staff.[48]

By 27 June the Navy was prepared to furnish the crews for the 105-foot lighters and requested permission from OPD to do so. After consultation with Somervell and Sturdevant, all agreed that the Navy should take over. This left open for decision, pending Hewitt's return, the question of training crews for the smaller craft. At a conference held on 8 July in Handy's office, Hewitt reiterated that he was acting under orders from King to train all landing craft crews for the European invasion, but admitted that the Army would have to furnish some of the personnel. He presented a plan by which the Navy would train officers and men in boat operation, leaving the training of shore parties and divisions to the Army. Hewitt insisted that training boat crews was a function of the Navy, asserted that the British preferred naval personnel for this work, and expressed a fear that Army-trained personnel might not be able to cooperate fully with the Navy, particularly in communications and navigation. He also emphasized the difficulties of navigating the Channel in small boats. The SOS representative conceded that boat operation belonged to the Navy, but felt that before the Navy took over it should catch up with the Army.[49] Handy interposed rather testily that everyone seemed to agree that crew training was a responsibility of the Navy. "If this issue could have been settled six months ago, there would be no argument at all. However, it is now July, and the Army has progressed very satisfactorily on this project. It is not believed that it would be sound for the Navy to take over the providing and training of smaller craft at this time." [50] In the end the Navy was given the choice of both providing and training all landing craft crews or leaving the training in the existing divided system, with the Army providing and training the crews for the smaller craft.

The EAC had meanwhile begun to evolve a justification for its existence, a natural outcome of the development of an *esprit de corps*. The training process had created a group of men who were interested in maintaining their organization and who were

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[47] (1) Matloff and Snell, *op. cit.*, pp. 221–22, 231–44. (2) Cline, *Washington Command Post*, pp. 163–64. (3) King and Whitehill, *op. cit.*, pp. 390–97. (4) Eisenhower, *op. cit.*, pp. 38–39.

[48] Memo, Handy for G–3, 26 Jun 42, sub: Alloc of Landing Craft for Tng in the U. S. OPD 353, Amph Forces, Sec. 1 (S).

[49] Memo, Mob and Opn Sec OCE for C of O&T, 9 Jul 42, sub: Conf in Gen Handy's Office, 7–8–42, re Amph Opn. OCE 353, EAC (S).

[50] Memo for Record, Lt Col Edward B. Gallant, 8 Jul 42, sub: Conf Amph Tng, 8 Jul 42. OPD 353, Amph Forces, Sec. 1 (S).

able to buttress their views through the experience they had gained. In the discussions of responsibility for amphibious training, Navy representatives had centered their arguments on the operation of boats, leaving shore operations to the Army. The Navy thereby provided the basis for the EAC's defense—unity of command. The EAC emphasized that brigades permitted the massing of large numbers of troops over small bodies of water with one organization responsible for transportation, organizing the beaches, and moving supplies inland. As Army units they could be integrated into a single command, whereas in combined Army-Navy operations the demarcation between Army and Navy functions at the shore line constituted a weakness at the most critical point. The Navy's doctrine in ship-to-shore operations violated the principle of unity of command on the far shore. While the naval section of a shore party was in the main answerable to the shore party commander, it reported directly to the naval force commander for certain functions. This made for divided authority on the enemy shore. Opposition by Marine Corps officers to this aspect of the Navy's doctrine strengthened the Engineer point of view.[51]

By 18 July the Navy had made its choice. At a joint Army, Navy, Marine Corps conference all consultants agreed that the *status quo* should be maintained. The EAC should train the crews for the 36-foot and 50-foot boats. The Atlantic Fleet Amphibious Force should train the crews for all larger craft. To insure co-ordination, Hewitt was to appoint a board consisting of officers from the EAC, the Amphibious Training Center, the Atlantic Fleet Amphibious Force, and the British Combined Operations Staff in the United States.

After receiving concurrence from Eisenhower in early August, the Joint Planners included this agreement in the revised overall amphibious plans that had remained unsigned by the Joint Chiefs since June. By 11 August the signing appeared to be a mere formality since Marshall and King had both unofficially approved. Steps had already been taken to form the various amphibious corps for ship-to-shore training and Hewitt was in the midst of appointing the board to co-ordinate all shore-to-shore training. But as the month of August wore on, King continued to ask for deferment and further study.

By early September when the Joint Chiefs finally signed the full plans for the organization of amphibious forces the strategy for invasion had shifted from a shore-to-shore operation against Europe to a ship-to-shore movement in North Africa. The Navy would obviously play the leading role. The controversial section on shore-to-shore training was deleted from the signed document and a very generally worded section took its place:

> Amphibious operations are essentially the responsibility of the Navy. Until such time as the Marine Corps can be expanded to fulfill necessary requirements for present and projected strategy, it is recognized that selected Army units must be made available for training and participation in amphibious operations.[52]

The wording of this document led to some confusion as to the status of the Engineer Amphibian Command. The Engineers

[51] (1) Arthur G. Trudeau, Amphibian Operations, lecture to 45th Div, Camp Edwards, Mass., 27 Jul 42. 350.001, Lectures. (2) Memo, Noce for CofEngrs, 16 Oct 42, with Incl, 15 Oct 42. 353, Tng Rpts of (S).

[52] Note by the Secretaries, Joint U. S. Chiefs of Staff, JCS 81/1, 5 Sep 42, sub: Distr and Composition of U.S. Amph Forces. ABC 320.2, Amph Forces, Sec. 1 (3–13–42) (S).

jumped to the conclusion that the Navy was to control shore-to-shore as well as ship-to-shore operations. Attempts by the command to obtain advice from the commander of the Atlantic Fleet Amphibious Force on training areas and types of instruction met with no response. In October, Trudeau found that Capt. Daniel E. Barbey, King's chief assistant for amphibious matters, interpreted the word "amphibious" to mean ship-to-shore operations only. The command requested immediate clarification. Meanwhile, the JCS enunciation of policy had led to some uncertainty in the War Department itself as to plans for the command's future.

Indecision in the War Department General Staff was apparent when it became necessary to find a training area for the 3d Brigade. Camp Edwards was not suitable for winter training. The Carrabelle camp was soon to be the home of the Amphibious Training Center with the 2d Brigade stationed there for joint training. The limited facilities at Carrabelle and other unsatisfactory conditions, such as the lack of surf, made another site desirable for the 3d Brigade. The EAC chose St. Catherine's Island, Georgia, and recommended it to the General Staff. Two factors militated against this proposal. AGF questioned the establishment of another base, and early in October G–3 indicated that there seemed to be no immediate need for the brigade. The inability of the General Staff to make up its mind on the disposition of the 3d Brigade led SOS on 17 October to order the winterizing of Camp Edwards. A week later growing indications of a demand for amphibian brigades in the Southwest Pacific culminated in a decision to ship the 2d Brigade to that theater. This action released space at the Carrabelle camp for the 3d Brigade but once again a green unit went into joint training with AGF. Although G–3 on 24 October confirmed the command's objective of three brigades and stated that it could not foresee the activation of additional units, the command realized that demands from the theaters of operations would determine future expansion.[53]

Emergence of the Southwest Pacific Requirement

The extreme likelihood that engineer amphibian brigades would be used in the Pacific was apparent from the very beginning of their organization.[54] Sturdevant had pointed out that they could be employed in that area for "envelopment of hostile flanks secured by coast lines and for crossing wide rivers and estuaries." [55] The War Department had indicated that it considered the twelve divisions which were originally to be given shore-to-shore training as providing for Pacific operations too.[56] But because over-all strategy was focused on the defeat of Germany, the EAC did not center its attention on the Southwest Pacific until plans for employment of the brigades in Europe had been scrapped.

At the same time that Allied strategy for the war against Germany shifted to the

[53] (1) Ltr, Noce to CofEngrs, 5 Oct 42, sub: Winter Tng 3d EAB. 353, Tng, 1942. (2) Tel Msg, Lt Col V. D. Whatley, SOS, for Trudeau, 17 Oct 42. 370.5, Asgmt Change of Station. (3) Memo, AC of S G–3 for CG SOS, 24 Oct 42, sub: Disposition of Amph Trps. Directives (S).

[54] Unless otherwise cited, this section is based upon: (1) SWPA (S); (2) 560, Vessels Boats Barges (S); (3) 322, Orgn Activation Disbandment of Units (S).

[55] Memo, Sturdevant for CG SOS, 2 Jun 42, sub: Rqmts of Sv Units Which Should be Activated by 31 Dec 42. EHD files (S).

[56] Min Joint Mtg Army, Navy, and British Offs on BOLERO, Washington, 5 Jun 42. File 1 (S).

employment of naval amphibious units, the war in the Pacific unexpectedly picked up momentum. The Joint Chiefs had not planned for any major offensive in the Pacific until 1943, but by midsummer of 1942 conditions were propitious for a drive against the island outposts of the Japanese. Here too the Navy had the primary responsibility for amphibious operations. The Army was at a disadvantage since the 1st Marine Division was the only unit in the Pacific that had the training and equipment for amphibious landings. Moreover, the naval plan to invade the southeastern Solomons and then begin a series of amphibious assaults against the islands of the Central Pacific became accepted strategy, with over-all control being vested in Nimitz. Amphibious operations in the Southwest Pacific under MacArthur would be dependent upon naval successes. The agreement on the composition and disposition of amphibious forces issued by the Joint Chiefs on 5 September which had made the Navy responsible for amphibious operations left unsettled the organization of amphibious forces for the Southwest Pacific. An Army amphibious corps of two divisions would probably be provided for ship-to-shore landings. Command was not specified. Units for shore-to-shore operations were not mentioned.[57]

The EAC, as an Army training organization, seemed doomed if the Navy was indeed to take over all amphibious instruction. But a chance bit of information picked up at just the right moment turned the EAC's efforts toward a plan which, if successful, would bring about a revival of the Army program. On the evening of 7 September Trudeau, on temporary duty in Washington, learned from Col. Walter E. Todd of OPD that the Navy proposed to send only sixty landing craft and crews each month to the Southwest Pacific in support of MacArthur. The number of boats was limited by the fact that they could not be stowed in the holds of any of the ships available. Deckloading this number each month on transports and freighters bound for Australia meant that at the end of a year MacArthur would have barely enough boats to move the combat elements of one division. The extensive island-to-island and outflanking maneuvers which the geography of the region dictated could scarcely be supported by such inadequate amphibious equipment.

Trudeau's agile mind immediately began to put this fortuitous piece of information to work in attaining his immediate goal of salvaging the EAC. By the morning of 8 September he was ready with an imaginative plan by which he believed the Army could furnish MacArthur with enough 36-foot boats for two divisions within 120 days. The boats would be prefabricated in sections and transported in ships' holds to an assembly plant which EAC personnel would establish somewhere in the Southwest Pacific.

After sending Somervell a skeleton outline of his plan, Trudeau spent the rest of the day contacting people who would have information on the number of small boat yards in Australia and the approximate amount of skilled labor he could rely upon there. To 1st Lt. Harry D. Hoskins he entrusted a secret mission to New Orleans, "ostensibly for an inspection of our training activities with Higgins Industries." But

[57] (1) King and Whitehill, *op. cit.*, pp. 382–89. (2) Isely and Crowl, *op. cit.*, pp. 86–98. (3) Note by the Secretaries, Joint U.S. Chiefs of Staff, JCS 81/1, 5 Sep 42, sub: Distr and Composition of U.S. Amph Forces. ABC 320.2, Amph Forces, Sec. 1 (3–13–42) (S).

"the real purpose of your mission is to find out for me the practicability of having all necessary materials, including hardware, boxed and crated for shipment overseas, with a view to assembling landing craft in any theater of operations." From observations at the Higgins plant, Hoskins was to decide whether sections of the boat could be "cut, baled and shipped" as Trudeau hoped, or whether uncut materials would have to be shipped in bulk. In either case Hoskins was to estimate how many men it would take to establish an assembly line capable of producing 10 to 25 boats a day. Trudeau impressed upon his emissary the magnitude of the scheme, the production of perhaps 2,000 boats, "rapidly and with assurance, if we are given the go ahead." Hoskins was to secure the information "without disclosing your purpose to Higgins Industries at this time, or to any of our personnel at New Orleans." [58]

By 11 September Trudeau had found out what he wanted to know about Australian facilities. A member of the Australian Purchasing Commission verified the fact that the few Australian boat yards were quite small, capable of building only two or three boats at a time. Neither boat yards of sufficient size nor skilled workmen in the numbers required would be available. A plant would have to be built or remodeled and labor familiar with assembly line techniques imported. The Australian advised the use of military units for this work, not American civilians.

Hoskins came back from New Orleans a few days later with rough sketches of the Higgins plant assembly floor, a wealth of statistics on employees, their skills, shifts and hours worked, and tools and techniques employed. He described to Trudeau in minute detail the step-by-step production of an LCVP from framing the wooden hull on templates to the final painting and welding on the metal ramp. Hoskins was convinced that the LCVP could be shipped in sections and assembled in the theater. With this knowledge at his command, Trudeau, back at Edwards, made up an impressive report which he sent to Somervell on 15 September, one week after submitting his first brief outline.

Trudeau estimated that by stowing the baled parts below deck, a single freighter could transport as many as 1,000 landing craft. Since it would be far too dangerous to entrust this much equipment to a single ship, the sections would of necessity be divided among several vessels. The same number of ships which were scheduled to deck-load 60 LCVP's could easily take 1,000 with plenty of hold space left over for other cargo. Larger landing craft could be carried on deck. About 700 men would be required to operate a three-shift assembly line, with a lesser number for subassembly work. Trudeau proposed to use the 411th Base Shop Battalion of 800 men augmented by about 160 specialists from Higgins, Chris-Craft, and other assembly yards. Setting up the plant would be a gradual process:

> An advance party could be sent to the theater of operations within 30 days from the date of authorization, followed by a construction crew for the assembly line, together with the first unit of 100 boats and an assembly crew in another 30 days. It is believed that within 90 days of authorization, that boats can be rolling from the ways and that within 120 days, a minimum of 300 boats per month can be assembled from a single assembly line.

[58] Memo, Trudeau for Hoskins, 8 Sep 42, sub: Directive to Off Going to New Orleans. SWPA (S).

After five months a rate of 500 boats a month should be possible.[59]

If the scheme were approved, the EAC staff could prepare lists of materials and equipment, devise a T/O for the assembly unit or units, begin time-motion studies, and draw up plans for assembly lines and launching areas. In short, the EAC was ready to take over this entire project just as soon as strategic and logistic considerations could be weighed and the number of boats and rate of delivery settled. SOS referred the project to the Transportation Corps, which found it feasible but stated that its inception should depend on the fixing of stable requirements. It was necessary to await the return of officers from the Southwest Pacific in order to determine the demand for landing craft above the 284 then established.

Early in October Trudeau was in Washington, busy with the details of moving the 3d Brigade to Carrabelle. But on Sunday evening, 11 October, he managed to have a long conversation with Admiral King and outlined for him the plan to assemble knocked-down landing craft in overseas installations. King was impressed and referred Trudeau to Captain Barbey, who showed great interest in the idea when Trudeau called on him Monday morning. It turned out that the Navy had previously considered such a plan, presumably the result of a cable from MacArthur to the War Department on 6 July 1942. "To economize shipping," MacArthur had cabled, "it is recommended if practicable that boats be shipped in a knocked down condition for assembly in Australia." [60] The Navy had discarded the plan because of the lack of yards and skilled labor in Australia, but Barbey agreed to study the matter further.

Later the same day Trudeau learned that Col. William L. Ritchie of the Southwest Pacific Theater Group of OPD had just returned from MacArthur's headquarters. Losing no time, Trudeau hurried over. Ritchie informed him that MacArthur was "most desirous of securing one brigade of Engineer Amphibian troops at the earliest practicable date, together with large numbers of landing craft." Trudeau urged Ritchie to call a conference immediately "to save him repeating and put this information where it would be used to the best advantage." In the ensuing talk with Col. Edward B. Gallant, Logistics Group, and Todd of the Southwest Pacific Theater Group, Ritchie stated that "his group was prepared to present a requirement for three such brigades, the first to be shipped in December and the other two to follow as soon as practicable." All agreed that a requirement for 2,600 LCVP's should be set up.[61]

Tuesday morning Trudeau returned to OPD to talk further with Todd, who showed him a draft of the requirement for three brigades for Australia. Trudeau recommended sending the 2d Brigade and the 411th Base Shop Battalion in December and an advance party in November to prepare the way. The future of the EAC seemed assured. Trudeau was ready to ask for another base shop battalion and for one LSD to be used as a floating machine shop and drydock in the theater of operations.

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[59] Incl, A Rpt on Problems Involved in the Assembly of Landing Craft in the TofOpns, to Ltr, Trudeau to Somervell, 15 Sep 42, sub: Assembly of Landing Craft. SWPA (S).

[60] Cable, MacArthur to AGWAR, No. C–32, 6 Jul 42. P&T Div file. There is no indication in the record that Trudeau knew of this study by the Navy before talking to Barbey on 12 October.

[61] Memo, Trudeau for CG EAC, 15 Oct 42. 322 Orgn Activation Disbandment of Units (S).

On 23 October the Navy approved the assembly of boats in the theater and the following day Hoskins was again on his way to New Orleans, this time with four assistants and with no need to disguise his purpose. Within a week this party had accomplished the major portion of the mission which Trudeau had assigned:

> . . . to secure a complete breakdown on tools, investigate the construction of the necessary jigs and templates, set up a system of crating and symbols together with a shipping point, make a plant layout together with the necessary computations for buildings and electrical installations, make a careful study of the assembly line with a view to organizing the personnel of the Base Shop Battalion along the proper lines, make an investigation and report on any prospective shortage of parts to meet our requirements, make necessary allowances for breakage during shipment and prepare a text and other instructional matter for our assembly crews.[62]

The 411th Base Shop Battalion, which had been developed at Edwards to provide 4th echelon maintenance of landing craft, was reorganized into a headquarters and headquarters company, a depot company, and three shop companies for three-shift operation, with a 10 percent increase in privates. On 1 November, 442 officers and men from the shop companies were dispatched to the Higgins yard where they went to work for about fifteen days on the assembly line. Films and slides of every step in the process were taken to be shown to the men on shipboard while they were en route to Australia. A smaller detachment from the depot company soon followed for a week of instruction in operating lumber yards and depots and in marking and crating sections.

OCE furnished space at the Lathrop Engineer Depot, near Stockton, California, as a consolidation point for boat sections, engines, and maintenance supplies. Officers from the EAC were stationed at Higgins, and at the Gray Marine Motor Company in Detroit to expedite the flow of boat sections and engines to the Lathrop Depot. From there other officers from the EAC undertook to supervise every step of shipment until the cargo was placed in the holds of the transports. During November, the depot was to expect the knocked-down sections of 100 boats as well as 125 engines and additional plywood and other supplies which were to be relayed to the Southwest Pacific during December. By the end of the year, twice that amount should arrive.

The formal directive which SOS issued on 10 November provided for the establishment of an assembly plant with a capacity of 500 landing craft a month. Trudeau stressed the crucial nature of the task in a letter to the men who were to expedite the flow of materials and to those who were to co-ordinate with the Navy and the Transportation Corps. "This project is the most important one yet undertaken by the Engineer Amphibian Command," he wrote, "and the success of this Command as well as [of the] theater of operations it is to support will probably depend to a very large extent on how efficiently the missions . . . are carried out." [63]

So important did Trudeau consider the developments in the Southwest Pacific that he went himself with the party which smoothed the way for the 2d Brigade and the 411th Base Shop Battalion. On 9 November, only two months after he had originally conceived this plan, Trudeau, accompanied by Hoskins and Capt. B. I. Grabau,

[62] Ltr of Instrs on Assembly of Landing Craft, Trudeau, 1 Nov 42. 560 Vessels Boats Barges (S).
[63] *Ibid.*

boarded a plane at Hamilton Field, California, bound for Australia. At four o'clock in the afternoon of 13 November their plane touched down at Amberley Field, near Brisbane. Advised by radio to report at once to advanced headquarters, Trudeau headed for Port Moresby, New Guinea, leaving his assistants to investigate possible Australian sites for the assembly plant.

Beginning on 15 November, Trudeau spent four days explaining the organization and capabilities of the brigades, convincing first MacArthur's staff and then MacArthur himself that the theater needed three brigades instead of one. The assembly plant in Australia would furnish sufficient boats to make the increase possible by early spring, but the brigades would have to be activated immediately in the United States if the men were to be adequately trained. A request should be sent through at once. Trudeau found MacArthur and his staff receptive for several reasons to the idea of using Army troops trained in shore-to-shore landings. The proximity of islands, the necessity for flanking movements along the coasts, the shallow, reef-littered water in which some of the operations would have to be conducted, and the suitability of small boats for lightering supplies and equipment provided ideal conditions for these units. There was also a general shortage of engineer troops in the theater. The shore elements of the brigades could perform some of the tasks usually assigned to general engineer troops or to engineer aviation units, and the boat elements contained men who were capable of maintaining and operating all kinds of internal combustion engines and port facilities.[64]

Perhaps not the least among the reasons for the ready acceptance of the brigades was the fact that their appearance in the theater would decrease the dependence of the Army upon the Navy. Trudeau found a "widespread feeling" among Army officers that the Navy "cannot and will not operate in constricted waters north of Australia."[65] The Navy was indeed reluctant, and with good reason. Strategy for the August offensive in the Solomons had in large part been based upon recommendations from the Navy. Planners felt there was too much danger inherent in MacArthur's plan, which would have committed major naval vessels to dangerous waters within reach of land-based Japanese planes. The Navy did not consider its fleet expendable, especially its fast carriers, and remained wary in its relations with MacArthur. The Army task of protecting Port Moresby and driving around the eastern end of New Guinea, and its goal of securing the northwestern Solomons and the New Britain–New Ireland area called for operations in waters in which the Navy would be extremely vulnerable. These brigades, then, offered an alternate means by which MacArthur might transport masses of men short distances in a shore-to-shore movement.[66]

With the assurance that MacArthur would request two additional brigades, Trudeau rejoined his assistants in Australia. They had confirmed Cairns as the most desirable site for the 411th Base Shop Battalion assembly plant. By 3 December, with sites for the 2d Brigade also secured, Trudeau's mission was accomplished. He might have returned to Edwards at this point flushed with success, realizing that he had helped to solve an important logistical problem and satisfied that the new training objective

[64] Incl, 14 Dec 42, with Memo, Trudeau for ACofS OPD, 14 Dec 42. 370.2, Obsvns Rpts on Trps (S).

[65] *Ibid.*

[66] (1) Isely and Crowl, *op. cit.*, pp. 88–98. (2) Matloff and Snell, *op. cit.*, pp. 259–62.

would extend the life of the EAC for several months to come. Just before leaving Australia, however, Trudeau learned that although MacArthur had requested the two additional brigades the War Department had refused them on the grounds that it first desired an appraisal of the units already committed. Leaving Grabau at Cairns to supervise the construction of the boats, Trudeau and Hoskins left Australia early in December, disturbed and disappointed.[67]

Upon his return to Camp Edwards, Trudeau found that matters had not gone well there either. During November the departure of the 3d Brigade for Camp Carrabelle and of the 411th Base Shop Battalion for the Southwest Pacific had depleted the Engineer Amphibian Command of all its units in training. In order to provide for the expansion which he hoped would result from Trudeau's mission, Noce requested personnel for an amphibious regiment of school troops who would also help to improve instructional methods and techniques of operation. G–3 disapproved, declaring the personnel estimates excessive. On 26 November 1942, SOS directed the Chief of Engineers to reduce EAC functions, as directed by G–3, to the maintenance of equipment and facilities at Camp Edwards, operation of a parts depot to meet requirements in the United Kingdom, and provision of a small nucleus for loss replacements and for additional brigades six months in the future.

Meanwhile, on 27 November MacArthur resubmitted his request for two more brigades, emphasizing that he wanted these units in the theater by June 1943. In late December the War Department reconsidered, accepting a compromise plan submitted by SOS. The 4th Engineer Amphibian Brigade would be activated as soon as practicable after the first of the year, take its basic training at Fort Devens, Massachusetts, and move to Camp Edwards on 1 April for another month of training. A fifth brigade might be activated later, but not until the 4th Brigade had completed its entire cycle. The maximum training load for the EAC was thus reduced to one brigade.

Final Objectives and Dissolution of the Command

Setting up a minimum requirement for the Southwest Pacific theater saved the command from liquidation early in 1943 when there were no brigades in training at Edwards.[68] On 5 February the Navy, which had just begun to augment its forces by taking men from the draft, proposed that this would be a good time for the Army to discontinue the training of amphibious boat crews. Existing crews and units composed of draftees could now be transferred to the Navy. The EAC was convinced, however, that the mission of the brigades was not compatible with the Navy's concept of amphibious operations. In order to emphasize that difference the command sought to employ a different type of craft from that used by the Navy.

The longer distances involved in shore-to-shore operations, the command reasoned, demanded a larger and faster boat. Early in 1943 the Development Section assigned Lt. Col. William F. Schultz, Jr., to work with Higgins on the design of an "Army" land-

[67] Memo, Trudeau for ACofS OPD, 14 Dec 42. 370.2, Obsvns Rpts on Trps (S).

[68] With the exception of those files which are cited separately hereafter, the remainder of this chapter is based upon: (1) 353, Tng (S); (2) 353, Tng; (3) Directives (S); (4) GOs; (5) 320.2, Activation and Orgn; (6) 320.3, TOs; (7) 322, Orgn Activation Disbandment of Units (S).

ing craft. The result was a 59-foot lighter with a speed, depending on load, of from 12 to 16 knots and a cruising range of 200 miles. The command proposed to replace both LCM (3)'s and LCVP's with this boat. The craft would take *any* divisional vehicle. It lent itself better to combat loading. Moreover a saving in personnel would be realized. Whereas it took 234 men to transport 3,390 in LCVP's and LCM's, 3,600 could be transported in the proposed boats by 184 men. The command continued to push for adoption of the 59-foot lighter well into the fall of 1943. But largely because the survival of the command itself remained questionable, these efforts were in vain. The LCVP and the LCM(3) were retained as the main components of the brigades' fleets.[69]

General Marshall was inclined to turn the boat crews over to the Navy provided the Navy was prepared to meet Army requirements for future missions. Theater commanders would meantime be consulted as to the effect of the change on their plans. The theater most directly concerned was the Southwest Pacific, and MacArthur raised strenuous objections. He drew a distinction between long-range operations by naval convoys culminating in ship-to-shore amphibious assaults, and short-range shore-to-shore movements. These last, he contended, were an extension of land operations. The word *amphibian* should be removed from the name of the brigades and be replaced by the word *special*. Training should be under Army control.[70]

MacArthur's views altered the cast of negotiations. On 8 March 1943, representatives of the War and Navy Departments agreed to retain the 3d and 4th Brigades under Army jurisdiction pending their movement to the Southwest Pacific. The Army consented to discontinue all other amphibious training, while the Navy promised to meet future Army requirements for boat crews and replacements. Upon completion of the instruction of the 3d and 4th Brigades, Army facilities and equipment were to be made available to the Navy. Control over amphibious units and activities overseas was left to the discretion of theater commanders.

The decisions reached on 8 March also settled the running controversy between SOS and AGF over the control of the brigades during joint training, and the withdrawal of these units from joint training for task force missions. Noce had recognized that the complaints of the AGF Amphibious Training Center had some justification but felt that what was needed was more time. In December 1942 he had written:

> We are in accord with the Army Ground Forces, that the constant replacement of green Engineer Amphibian Brigades for combined training is not a satisfactory solution to the problem, and the past rapid turnovers were due to the uncertainties of war and not to any desires of this Command. It is neither fair to the Infantry division being trained nor is it fair to this Command to expect well trained units to be turned out in 90 days or less. We have repeatedly stated that when fillers are furnished from Reception Centers, it is our opinion that a minimum of five months should be allowed from the time the organization

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[69] (1) Ltr, Design Sec EAC to CG EAC, 3 May 43, sub: Addenda to Rpt on Landing Craft, Dated 3 Feb 43. EHD files (C). (2) Ltr, Lt Col William F. Schultz, Jr., to CO EAC, 23 Aug 43, sub: 59-Foot Experimental Tank Lighter. 400.112, Test Trials Analysis Investigation of Articles of Sup. (3) Ltr, Trudeau to Col C. T. Tench, 17 Jul 43. Trudeau file, Morale—Tench. (4) Ltr, Trudeau to Ogden, 16 Nov 43. Trudeau file, Gen Ogden. (5) Tentative Tng Guide 1, Hq EAC, Feb 43, sub: Engr Amph Trps, Gen.

[70] Cable, CINCSWPA to WD, 2 Mar 43. OPD cable files, CM–IN 747, 2 Mar 43 (S).

reaches its approximate Tables of Organization strength before a brigade is considered ready for either advanced combined training or actual operations in the field.[71]

While the Engineers sympathized with the AGF point of view on the state of training in the brigades, they strongly resisted its efforts to absorb the command early in 1943. On 5 January, G–3 issued two directives. One assigned the preparation of T/O&E's for the brigades to AGF. The other charged SOS with the activation and technical training of engineer amphibian brigades which were to pass to the control of AGF for joint training. Having secured this increased authority, AGF went one step further, suggesting that the task of preparing T/O's had been given to it because the brigades were "specialized combat units" and therefore should be under AGF control. The EAC existed solely for training the brigades. AGF therefore recommended that the EAC and all its activities be assigned to it.[72] On 1 February 1943, Sturdevant replied to the AGF proposal by asserting that the brigades were "specialized supply and transportation units" and that the Engineers could see no tactical reason for AGF to prescribe personnel, organization, and equipment. As a counter recommendation, he suggested the task of drawing up T/O&E's be returned to SOS. After the Army-Navy agreements of 8 March 1943, AGF was no longer responsible for any amphibious training. The AGF Amphibious Training Center was disbanded, and the preparation of T/O&E's reverted to SOS. Following MacArthur's suggestion, the War Department soon thereafter renamed the brigades "engineer special brigades" and the amphibian regiments "engineer boat and shore regiments."

AGF control of these T/O's from January to March 1943 delayed the publication of revised tables. In November 1942, the EAC had submitted for War Department approval a T/O which increased the size of the brigade by some 90 officers and over 860 enlisted men. McNair had already criticized the brigade as carrying too much strength, for it required the troops of half a division to move a division, and during discussions of these tables both SOS and AGF emphasized the importance of removing excess personnel. The EAC was in the process of making revisions when AGF took over the task. In March SOS reassumed this duty, and on 21 April 1943 the War Department approved a T/O based primarily on the November revision. It provided for 378 officers, 16 warrant officers, and 7,005 enlisted men organized into three boat and shore regiments, a boat maintenance battalion, a medical battalion, an ordnance company, a quartermaster headquarters and headquarters company, and a signal company. Quartermaster units were to be attached as needed. The command did not concur in all troop reductions, but it considered retention of the regimental organization, which AGF had proposed to abolish, an important victory. Through the regiment the command secured co-ordination of boat and shore elements.[73]

The various high level discussions which went on from September to March did not

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[71] Ltr, Noce to CofEngrs, 28 Dec 42, sub: Activation and Tng of Additional Engr Amph Brigs. 322, Orgn Activation Disbandment of Units (S).

[72] Memo, Actg ACofS G–3 for CG SOS, 5 Jan 43, sub: Sv Units. 320.2, Gen. (2) Memo, ACofS G–3 for GCs SOS and AGF, 5 Jan 43, sub: Responsibility for Tng of Sv Units, with Incl. 353, Tng (C).

[73] (1) Memo, Actg CofS EAC for File, 8 Dec 42, sub: Conf on T/Os, Engr Amph Brig, Held in Munitions Bldg, 7 Dec 42. 320.3, T/Os (C). (2) Min, 23 Dec 42, sub: Engr Amph Brig Conf. 337, Confs Mil Naval and Other Mtgs (S).

prevent the command from going ahead with its efforts to improve the caliber of its instruction. During the winter months, when there were no units at Edwards, Noce seized the opportunity to perfect training literature. In December 1942, he decided to publish command doctrine in informal training guides, emphasizing pictures, diagrams, and sketches, and presenting the Engineer amphibian mission as simply and graphically as possible. These volumes incorporated material from command training memoranda, from a formal training manual which the command had projected, and from various War Department field manuals. Tentative Training Guide No. 1, issued in February 1943, described the general employment of engineer amphibian troops and was meant for officers. Tentative Training Guide No. 2 for enlisted men, published in April, was concerned with the duties of boat crews.[74] Five others on marine maintenance; troops and operations; organization of the far shore; reference and logistical data; and intelligence, navigation, and communication rounded out the series. While publication of some was considerably delayed, the manuals provided the 4th Brigade with more training literature than any of the preceding units.

Shortly after 31 December 1942, when the War Department issued the directive authorizing the formation of the 4th Brigade, G–3 set the goal for completion of its unit training at three months from the scheduled activation date of 1 February 1943.[75] This time allotment caused some concern both to the command and to SOS, for 75 percent of the officers in the unit were to be recent OCS graduates without amphibious experience. The same percent of enlisted men were to come directly from reception centers. Furthermore, the remaining 25 percent of the enlisted men would not be available from replacement training centers until the end of February. As a result of protests by both the command and SOS, G–3 extended the target date for completion of unit training to 30 June 1943, thus allowing the five months' training period which the command considered essential.

Not only was the 4th Brigade fortunate in having adequate time for training, it was also provided with an excellent cadre from the 2d and 3d Brigades—well qualified in age, health, and AGCT scores. The men had been so carefully selected that only a small percentage had to be reclassified. It was, moreover, a source of satisfaction to the classification officer that a large proportion of recruits was to be obtained from the 1st, 2d, and 6th Service Commands, which supplied personnel he believed to be more highly educated and trained than men from other service commands.[76] Problems of time and personnel were, therefore, not as great as they had been when the command was first organized.

Training of the 4th Brigade contrasted with that of earlier units because of other factors also. The EAC had eight months of experience in perfecting its organization,

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[74] (1) Memo, 1st Lt Ralph M. Ingersoll, Public Relations Off EAC, for Col Henry, 30 Nov 42, sub: Discussion With CG on Tng Memos. 009, Tng Guides. (2) Memo, Ingersoll for Staff of Tng Guide Sec (No. 2), 4 Dec 42. Same file. (3) Tentative Tng Guide No. 1, Hq EAC, Feb 43, sub: Engr Amph Trps, Gen. (4) Tentative Tng Guide No. 2, Hq EAC, Apr 43, sub: Engr Amph Trps, A Manual For Boat Crews.

[75] Memo, ACofS G–3 for CG SOS, 10 Jan 43, sub: Disposition of Amph Trps. OCE 320.2, EAC (S).

[76] (1) Ltr, Clas Off EAC to CG EAC, 5 Feb 43, sub: Distr of Reception Center and RTC Filler Repls. 220.01, Clas of Scores in Tests. (2) Ltr, Clas Off EAC to CG EAC, 5 Feb 43, sub: Over-all Estimate of 3d Brig Cadre. 320.2, Cadre.

doctrine, and training facilities. One brigade, the 1st, had already participated in the North African invasion, performing boat maintenance and shore functions, thereby furnishing combat lessons for the new brigade. The boat shortage which had plagued the earlier brigades was somewhat alleviated by the longer training time allowed and by the transfer of landing craft from Camp Gordon Johnston (Carrabelle) after the dissolution of the Amphibious Training Center.[77]

As had been planned earlier, the 4th Brigade took its basic training at Fort Devens and moved to Camp Edwards in April for the completion of technical and specialist instruction and the beginning of tactical instruction. At this point the program came under the direct supervision of EAC headquarters. Boat battalions had four weeks of training in boat operation under the Boat Unit Detachment and two weeks of special weapons training under the Weapons Detachment. The Shore Units Section instructed shore companies for periods of four days each. During the remaining time, under the direction of their unit commanders, these companies learned road building, bridging, loading procedures, beach organization, and general engineer tasks. Maintenance companies were instructed by the maintenance shops of the command, which in addition provided a Marine Engine School, a Marine Machinist School, a Hull School, and a Welder and Wheel Repair School. Maintenance companies also had instruction in boat operation and weapons. Service units assigned and attached to the brigade carried on training under their individual commanders. In addition to conducting and supervising training of these various units the command gave courses for amphibious scouts, communications specialists, and amphibian truck drivers, and continued to send men to civilian schools. Within the brigade there were schools for camofleurs, clerks, truck drivers, and similar specialists.[78]

From 23 May to 30 June the brigade completed tactical training of individuals and trained progressively larger units as a team. The 4th Brigade remained at Edwards through August and was better trained than any of the former brigades. In September it moved to Camp Gordon Johnston for joint training with the 4th Infantry Division under the direction of the Amphibious Training Command, Atlantic Fleet.[79] The departure of the 4th Brigade reduced the training functions of the command to completing the instruction of enlisted replacements and of the 692d Base Shop Battalion. Although the command finished its task in December 1943, a small supply staff lingered on until April 1944 when it finally disbanded.[80]

The Engineer Amphibian Command's existence was relatively short—for all practical purposes, eighteen months. During this time it trained four brigades, only half as many as first anticipated. The original pro-

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[77] Ltr, Trudeau to CofEngrs, 15 Jan 43, sub: Proc of Landing Craft. 400.1301, Priority of Sup (C).

[78] (1) Ltr, Dir Sch and Marine Maint EAC to CG EAC, 28 Jan 43, sub: Grades and Ratings. 221, Gen. (2) EAC Tng Memo 3, 27 Mar 43, sub: Tng Program 4th EAB, 12 Apr–22 May 43. EHD files.

[79] (1) Ltr, Asst Ground AG to CG Second Army, 25 Sep 43, sub: Amph Tng. 220.33, Transfers. (2) Memo, CO EAC for Dir of Tng ASF, 22 Aug 43. 333, Inspecs and Investigations by IG and Other Official Rpts.

[80] (1) 2d Ind, Lutes to CG EAC, 21 Jul 43, on Ltr, CO EAC to CG ASF, 17 Jul 43, sub: Rqmts and Tng of Repl and Overstrength Pers in the EAC. 320.22, Requisition for Enl Strength (S). (2) Ltr, CO EAC to CG First SvC, 3 Dec 43, sub: Movement of Engr Amph Comd. 370.5, Asgmt Change of Stations. (3) Tel Conv, Mil Pers Br OCE, 4 Oct 55.

gram was based on strategic plans for crossing the English Channel. Whether the Army could have accomplished this on an eight division front in small boats, as it seems to have contemplated, is now an academic question. The Army soon realized that it could not train sufficient troops for such an effort. The shortage of landing craft was primarily responsible for a change in objectives.

Joint training with ground forces units revealed that none of the first three brigades had sufficient time in preparation. On top of this the command experienced shortages of equipment, lack of facilities, scarcity of instructors, large percentages of grade IV and V men, and increasing numbers of recruits without basic training. The bulk of the command's instructional activities was confined to the first five months of its existence, when equipment and personnel problems were most acute. A lack of balance resulted from constantly changing objectives. The changes came in part from shifts in strategic plans but also stemmed from uncertainty in the General Staff over what to do with this organization in view of the possibility that the Navy would absorb it. Faced with this uncertainty, the EAC found a need for the brigades in the Southwest Pacific.

The extent to which the brigades were used overseas provides the ultimate basis for an evaluation of the command's accomplishments. The 1st Brigade participated in the invasions of North Africa, Sicily, Italy, Normandy, and Okinawa, performing shore operations only. Two more brigades, the 5th and 6th, were organized in Europe for shore duties in the Normandy invasion. Although these two brigades had no connection with the EAC and lacked the boat units that characterized the brigades in the Southwest Pacific, the organization of special shore units was command inspired. In the Southwest Pacific the 2d, 3d, and 4th Brigades performed both boat and shore functions. The 2d Brigade went into action in June 1943 at Nassau Bay, and by the end of 1943 had participated in landings at Lae, Finschhafen, Arawe, and Cape Gloucester. Early in 1944 the 3d Brigade joined the 2d for operations on New Guinea and New Britain. Later the same year the 4th Brigade joined these two. All three had a share in the Philippines campaign. When planning for the invasion of Japan, MacArthur asked for additional brigades, supported in this request by a most favorable opinion of these units from the Navy.[81] After the Lingayen landing on Luzon, a report from the headquarters of the Navy's Seventh Amphibious Force had conceded that "the Engineer Special Brigade as organized in the Southwest Pacific Area is the most efficient Shore Party organization now functioning in amphibious warfare." [82]

In the Southwest Pacific the brigades performed a twofold mission—transporting troops for amphibious assaults and getting supplies to them thereafter. Combat support had received strong emphasis in their training under the command. In the early period it had been the foremost consideration. Full realization of the logistic potentialities of the brigades came during their employment overseas. The command's significance lies both in its development of shore-to-shore transportation techniques which increased the mobility of MacArthur's land forces in the Southwest Pacific Area and in its perfection of shore party procedures which simplified the intricacies of supply in an attack against an enemy shore.

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[81] (1) Heavey, *op. cit.*, pp. 189–98. (2) Interv, Trudeau, 3 Jun 50.

[82] Quoted in Mil Tng in EAC, May 42–Apr 44, p. 8.